

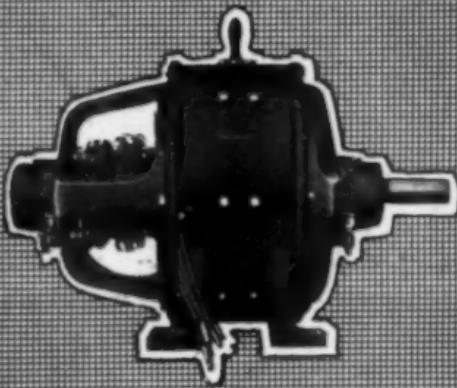
Monthly

A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



Motors built to stand hard work

Before building Type T motors we went to those plants where motors get the hardest usage. Thirty-five prominent electrical engineers in these plants showed us what was necessary to meet the demands of their work. We then built into Type T motors the experience of these practical men who have had wonderful opportunities to learn the need for quality and strength in every motor detail.

How we did it is told in Bulletin 2014 with 39 illustrations.

Send for a copy

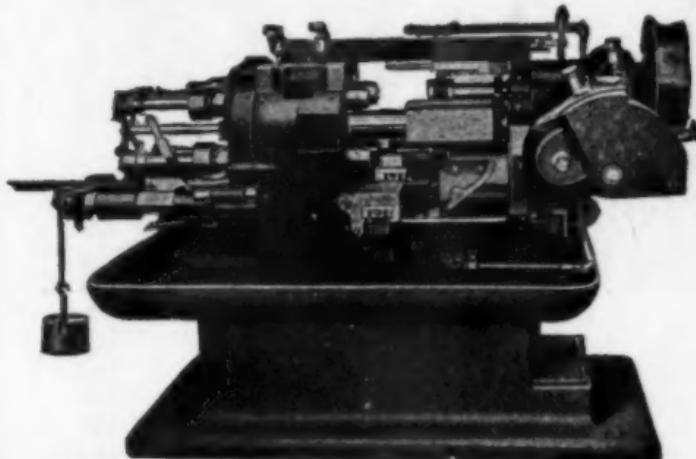
**Reliance Electric
& Engineering Company**
1050 Ivanhoe Road, Cleveland, Ohio

AUTOMATIC PRODUCTION

Of Duplicate Parts on

Gridley Automatics

Means Economy and Satisfaction



Gridley Multiple Spindle Automatic Screw Machines
Capacities up to 2½" diameter.

Gridley Single Spindle Automatics up to 5" diameter

Complete data on request

THE NATIONAL ACME COMPANY

GENERAL OFFICES
CLEVELAND

Windsor, Vermont

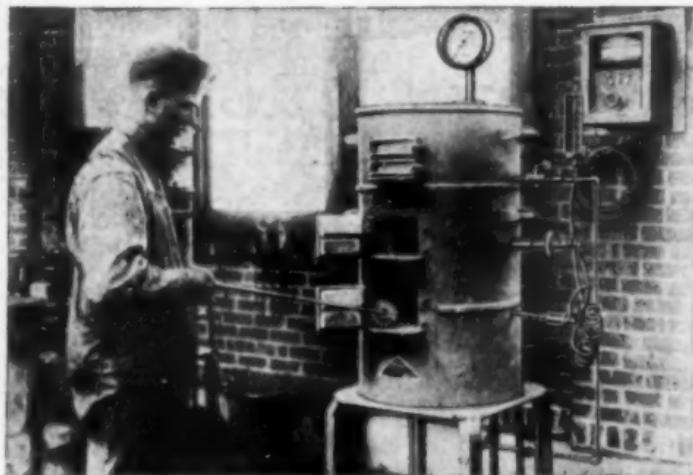
CANADIAN SCREW PLANT
MONTREAL, P. Q.

Branch Offices:

NEW YORK BOSTON CHICAGO DETROIT ATLANTA SAN FRANCISCO
WAREHOUSES—NEW YORK, CHICAGO With FOREIGN REPRESENTATIVES

Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vt., and Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio

ALL HIGH SPEED STEEL Treatments
In One "Triad" Furnace
Cuts the Cost of Fuel in Two



The three steps commonly employed in treating high speed steels—pre-heating, high-heating and drawing the temper—are all accomplished simultaneously in a one-man, single-burner "Triad" Furnace. It has three compartments, yet takes but two square feet of floor space, so that it may be installed in any tool room, and burns either fuel oil or gas.

Sufficient heat for hardening tool steel can be obtained in the lower compartment *in ten minutes*, and for hardening high speed steel *in twenty minutes*—all from a cold start. Temperature increased from a pre-heat of 1500 to 2250 degrees Fahr. on a $3\frac{1}{2}'' \times \frac{3}{4}''$ milling cutter *in two minutes and 30 seconds*.

Being cylindrical and well insulated, there are no cold corners. It also prevents pitting or scaling. The cost of installation is immensely less, and it *saves at least one-half in the cost of fuel*.

Complete specifications gladly mailed upon request

W. R. BENNETT CO., Elmwood, Conn.

SKF BALL BEARINGS



Self-Alignment

SKF Ball Bearings adapt themselves to any shaft deflection or spring. A very necessary feature for any bearing.

Ball Retainer in One Piece

The retainer cage is made in one piece, and will not jam balls, disarrange spacing, or make noise. The retainer is open at the sides, permitting of easy inspection and cleaning and insuring positive circulation of the lubricant.

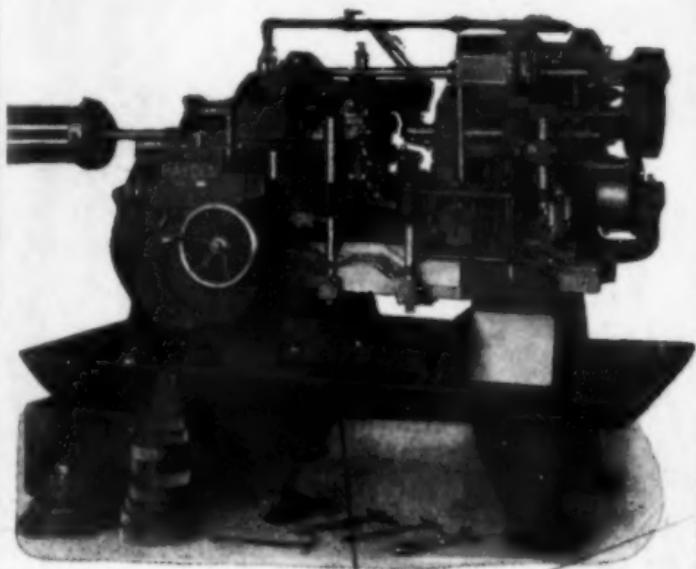
Double Row of Balls

SKF Ball Bearings have a double row of balls. This means also a minimum load per ball. The balls are arranged in staggered relation, giving even distribution of load.

349

SKF Ball Bearing Co.
Hartford, Conn.

The Cincinnati Automatic



Figures Talk—

- 5** Spindle Screw Machine.
- 9** Tools can be operated together.
- 2½ to 36** Seconds actual time per piece.
- 2** Seconds for indexing head and bringing tools into position.
- 2** Levers for starting and stopping—one on each side of machine.
- 4** Cross Slides for circular tools, and **5** Longitudinal Tool Slides for turning, drilling, etc.
- 16** Changes of spindle speeds, and **20** changes of time to make one piece.
- 48** Superior Features (shown in Catalog), covering every important point, which make the Cincinnati Automatic superior to all others in every respect.

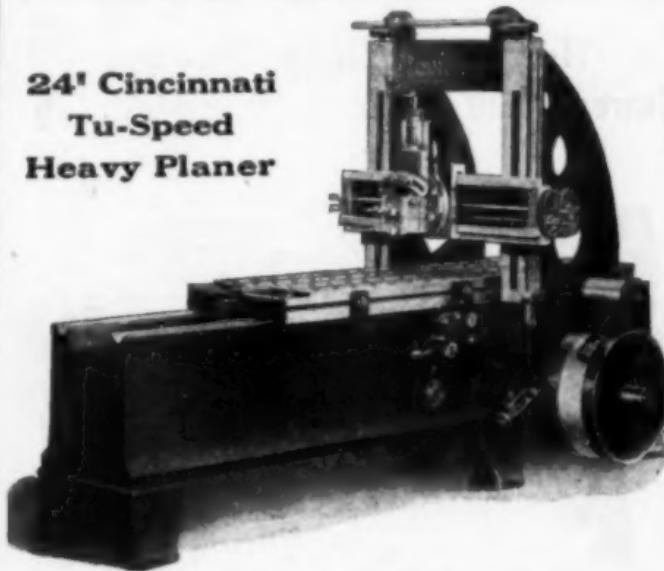
We are ready to prove up IN YOUR OWN WAY

Cincinnati Automatic Machine Co.
Oakley, Cincinnati, Ohio

Cincinnati Tu-Speeds

From 22" to 48" Inclusive

**24" Cincinnati
Tu-Speed
Heavy Planer**



The Cincinnati Patent Tu-Speed Drive increases production and saves money—both are very important right now.

It provides two different speeds for work of a different character—for roughing and finishing, for example—both giving maximum results. Just shift the lever at side of housing, without even stopping the machine, and the change is made.

Nor are the two speeds fixed and arbitrary; they can be made exactly what will best fit your needs.

This simple and practical arrangement makes the one-speed planer so wasteful of time on such a large class of work that no manufacturer can afford to run it. Even in a jobbing shop one speed is unprofitable unless the work is paid for by the hour.

Planers for your requirements. Write for Catalog.

The Cincinnati Planer Co.
Cincinnati, Ohio, U. S. A.

From 16 to 30-Inch

G-K Engine Lathes

Heavy Quick Change Type and
Geared Head Single Lever Control Type



G-K 16" and 18"
Heavy Quick Change

G-K Betterments

embody a number of original improvements suggested by our experience of 25 years in lathe building, which give greater ruggedness, productive capacity and convenience than is possible without them. As a result, G-K Lathes are not only proving to be unusual producers in the hands of the practical mechanic, but, as a manual training teacher wrote us, "they are the most nearly fool-proof when handled by boys who are green at machine work." G-K Betterments, therefore, are as simple as they are effective—the result of long experience, some inventive ingenuity and mechanical common sense.

Our Catalog shows G-K Betterments in detail

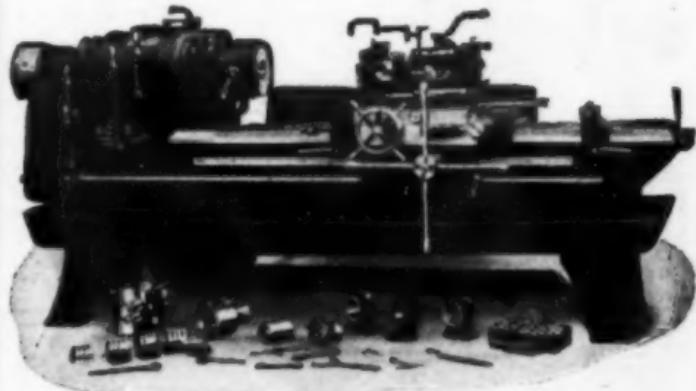
The Greaves-Klusman Tool Co.
Cincinnati, Ohio, U. S. A.

CINCINNATI-ACME

**3 1/4 x 36-Inch
Combination**

Flat Turret Lathe

3 1/4" x 36" Bar Cap. 16" Chucking Cap.



Cincinnati-Acme with Equipment for Bar Work

Take It Up

With Our Service Department

Yes, we have the most rigid turret lathe made; no doubt about that. It is simple, powerful, easy to handle and a big producer. But what you want to know is what it will do on *your* work.

If you will take it up with our Service Department, we can get down to brass tacks without any camouflage. Glad to do it for you, without obligating you in the slightest. You are not expected to buy unless you find it is to your interest to do so.

We are at your service; are you ready?

The Acme Machine Tool Co.
Cincinnati, Ohio, U. S. A.



Right Hand Off-Set Side Tool



Straight Shank Turning Tool



Left Hand Turning Tool



ARMSTRONG Tool Holders

Always ready to use.
Save all forging and
nearly all the Tool
Steel with Minimum
of Grinding.

Grand Prize winners
at the Panama-Pa-
cific Exposition.

Complete catalog free.

Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



The Assembled

Lovejoy Positively-Locked Inserted-Cutter Tools
have the same Simplicity and Trimness of outline
found in the solid tool, coupled with its

Strength

Lovejoy Tool Company, Inc.

Metal Cutting Tools

Springfield,

Vermont, U. S. A.

Modern Methods for Quick Work



A DAVIS KEYSEATER

Motor driven, will save you valuable space as well as increase your production. It is an investment you can't afford to overlook.

Write for Circular

DAVIS MACHINE TOOL CO., Inc.
ROCHESTER, N. Y., U. S. A.

A Riveting Combination



That Is Unequalled

THE GRANT RIVET SPINNER has no rival in its combination of speed, uniformity and finish of product, and easy operation by cheap help.

ONE RIVET A SECOND is its average production, and each rivet is headed with whatever tightness or looseness is desired. Every rivet head is perfectly formed, highly polished and free from hammer or tool marks.

CHEAP HELP CAN RUN IT. It may be operated by a boy, girl or woman. Does not require a trained mechanic.

Catalog? It explains fully.

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.



When you can get tapers right in much less time

isn't it a very desirable thing to do? When you can discover any taper inaccuracy at a glance; when you can also tell instantly when a taper is right; when you can save time and expense; and when the initial cost of doing all this is very small—isn't it well worth your while?

Hartford Taper Gages

are accurate, carefully-built devices, yet simple and inexpensive, which enable you to do all the above most satisfactorily and profitably. If you turn tapers at all, you should not be without one or more of them. May we not at least tell you about them?

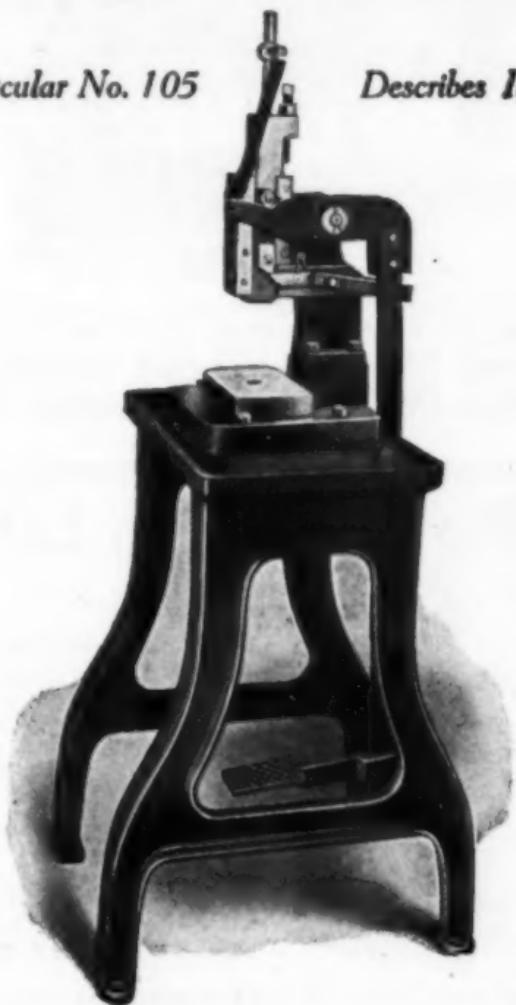
Hartford Special Machinery Co.
285 Homestead Ave., Hartford, Conn.

Spring Foot Press No. 105

Uniformity of Blow Vibrationless Non-Fatiguing

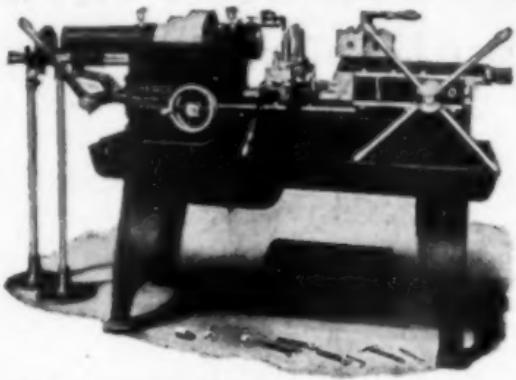
Circular No. 105

Describes It



The Taylor & Fenn Company
Hartford, Conn.

New Records In Turning Bar Stock



1" Pierce has the power and convenience that gives rock-bottom economy. Handles a wide range of work. Write to

**Pierce Machine Tool Dept. of
Pierce Wrapping Machine Co.**

617 W. Jackson Blvd., Chicago, Ill.

A Big Production Lathe

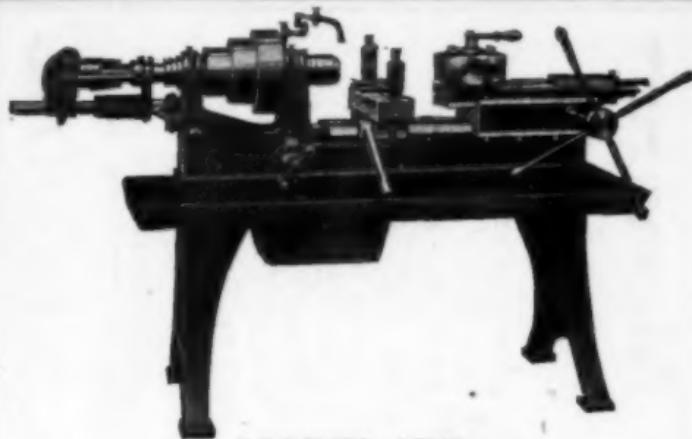
WICKES 26"
A. C. Motor Driven



Also 20", 32" & 36"

This high grade, heavy duty tool has no superior for maximum production of accurate work. Its power and convenience will appeal to you. Glad to send data for comparison.

WICKES BROTHERS, Saginaw, Mich.



MODEL "D"

Turret Lathes and Screw Machines

Now Ready for Delivery

**Designed for Rapid Manufacturing of
Parts Requiring Several Operations**

MADE IN FOUR SIZES:

No. 2 { $1\frac{1}{16}$ " Wire Feed Capacity, Plain Head
 { $1\frac{3}{8}$ " Hole Through Spindle.

No. 3 { $1\frac{5}{16}$ " Wire Feed Capacity, Plain Head
 { $1\frac{1}{2}$ " Hole Through Spindle.

No. 4 { $1\frac{1}{2}$ " Wire Feed Capacity, Geared Head
 { $2\frac{1}{8}$ " Hole Through Spindle.

No. 5 { $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head
 { $2\frac{9}{16}$ " Hole Through Spindle.

**With or Without Power Feed to Turret Slide.
Mechanically Perfect and Fully Guaranteed.**

Manufactured By

Smurr & Kamen Company
313 N. Whipple St., Chicago, Ill.

Monarch Lathes

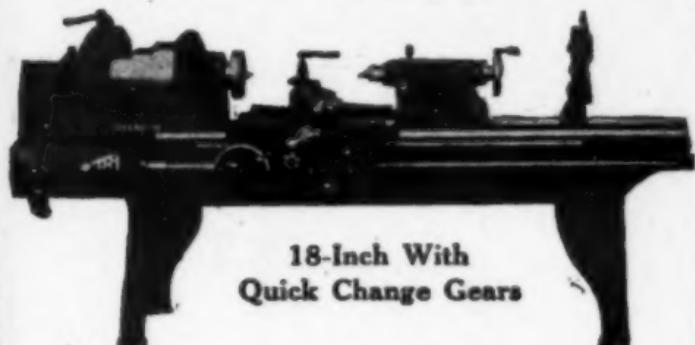
give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes**. Built in four sizes and in all styles and with any attachments desired.

*Sold by a leading Machinery Dealer
in every machinery center.*



The Monarch Machine Tool Co., Sidney, Ohio

There are Lathes and Lathes But Only One "Chard" Super-Quality



18-Inch With
Quick Change Gears

16", 18", 20", 24" and 28" semi and quick change
with 4-step back gear and 3-step double back gear

It requires about so much metal and so much labor to make "just a lathe." But why should we stop there, when only a little more work and care, plus our experience of over 35 years, will produce the "Chard"?—a lathe which, for instance, will bore holes through bronze without tolerance of any kind; which is constructed with such care and accuracy that the whole machine is interchangeable; which handles the heaviest work with ease, speed and accuracy. And that same experience enables us to make the price right for quality.

We solicit the inquiry of particular users

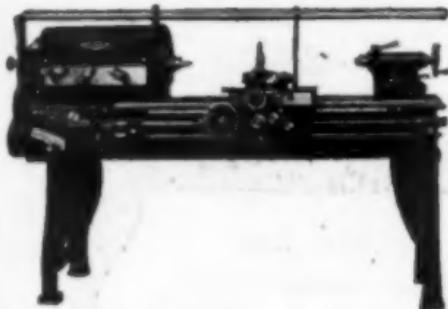
Chard Lathe Company New Castle, Ind.

DOMESTIC DISTRIBUTORS

THE F. O. STALLMAN SUPPLY CO., San Francisco, Cal.
VONNEGUT MACHINERY CO., Indianapolis, Ind.
ENGLISH & MILLER MACHINERY CO., Detroit, Mich.
OGDEN R. ADAMS, Rochester, N. Y.
THE W. M. PATTISON SUPPLY CO., Cleveland, Ohio.
J. S. MILLER MACHINERY CO., Pittsburgh, Pa.
MONARCH MACHINERY CO., Philadelphia, Pa.

Stands Up to Severest Service

The New "Filsmith" Stands the Tests



14" Swing
Q. C. Gear Box
And 12-Speed
Ball Bearing
Geared Head

This Lathe measures up to the modern machine shop efficiency tests. Embodies several new features. Extreme care and the best materials used throughout. Write for circular.

PHILIP SMITH MFG. CO., SIDNEY, O.

This Lathe Always Makes Good



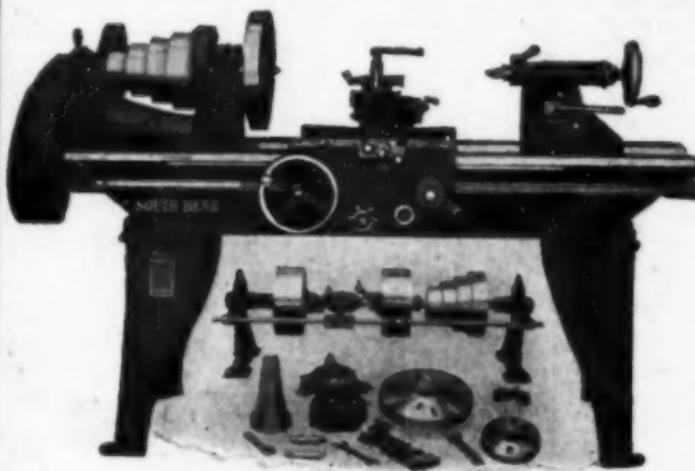
Quick Change, Double Back Geared
Made with 8, 10 and 12 ft. Beds, or
longer made to order. 20 and 24" Swing.

The ATLAS, like the wonder-athlete of old, is the embodiment of an over-abundance of power. It makes light of the heaviest work. Is accurate and dependable.

Good clear through. Let us send you specifications.

The Taylor Machine Co., Cleveland, Ohio

South Bend Lathe



16 in. x 6 ft. Screw Cutting Engine Lathe

South Bend Lathes have been on the market eleven years. Dealers in every large city.

Swing Over Bed, Inches	Length of Bed, Feet	Dist. Btw. Centers, Inches	Hole Thru Spindle, Inches	Approx. Weight on Skids	Code	Price
13 $\frac{1}{4}$	5	32	1	1,000	Hasen	\$272
15 $\frac{1}{4}$	6	40	1	1,425	Jadin	352
16 $\frac{1}{4}$	6	36	1	1,700	Juddo	432
18 $\frac{1}{4}$	8	57	1	1,950	Kell	566
21 $\frac{1}{4}$	10	75	1	3,300	Penti	841
24 $\frac{1}{4}$	12	95	1	4,420	Polly	1,218

Made with straight or gap bed. Price includes all the equipment shown in illustration.

Many large, busy plants are increasing their production by using South Bend Lathes on duplicate work.

Send for free Catalog illustrating and describing entire line.

South Bend Lathe Works

Established 1906

South Bend, Ind.

East End

Guaranteed Accuracy!

Mulliner Quick Change Lathes are guaranteed to bore and to turn true to within .001-in., when properly set up.

Only the finest materials and workmanship are used in constructing these lathes. Every Mulliner Lathe is tested to a standard which is way above ordinary requirements.

Circulars giving details on request



THE HEAD: Pan construction—right—backward deflection of front bearing impossible.

AUXILIARY QUADRANT: Allows for application of additional gear.

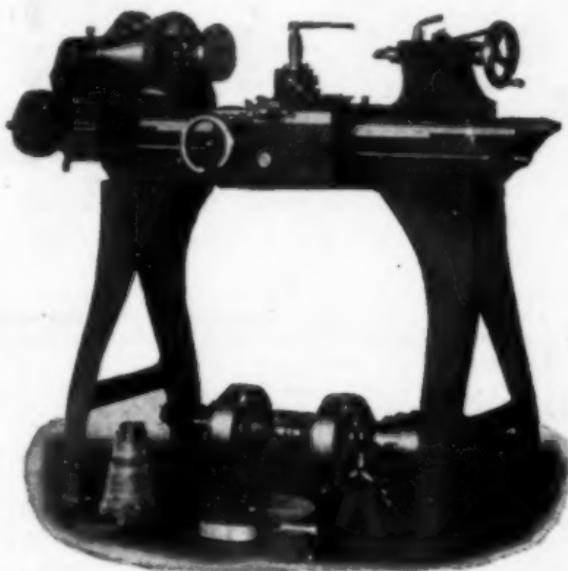
COMPOUND REST: All bearings fitted with bronze bearings.

DRAW-IN ATTACHMENT: Catches range from $\frac{1}{8}$ in. to $\frac{3}{8}$ in.
VARIABLE SPEEDS.

MULLINER-ENLUND TOOL CO., Inc., Syracuse, N. Y.

A Small Lathe of Quality

The 11-in. "Worcester"



We do not believe we could use more care in the construction of the Worcester Lathe if a government inspector were watching every move we make. "Worcester Quality" is the result of long experience and exceptional care. All cylindrical surfaces are ground, all flat wearing surfaces are scraped to plates, and down to the last screw we use every pains to prevent a single flaw from creeping into their construction.

We specialize on 11-in., 13-in. and 16-in. lathes—all of "Worcester Quality." You can rely upon every one of them as a known quantity in shop production.

We shall be much pleased to mail the full description

Worcester Lathe Company
68 Prescott St., Worcester, Mass.

Fulton Manufacturing Lathe A High Grade Tool at a Lower Price

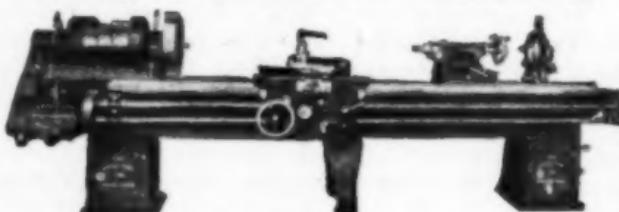


18 $\frac{1}{4}$ " x 7" — Heavy Duty

It is a useless expense to buy a complete equipment of costly screw-cutting lathes, when the "Fulton" costs much less and does plain turning, boring and facing as well as the best of them. And it's simpler. It's worth looking into. Write for details.

Fulton Machine Tool Co., 1438 Bryan Pl.,
CHICAGO, ILL.

Great Power and Rigidity Sidneys Are Built For Heavy Duty

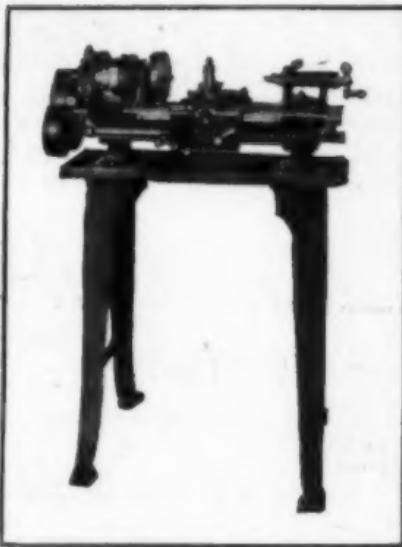


MODERN THRUOUT, of solid build and dependable accuracy, Sidney Lathes are giving efficient service, both in quantity and quality.

THEY ARE HARD AT IT in a number of shops, faithfully doing their bit of the big job of making the world safe for democracy. Glad to tell you all about the three sizes—15", 17", and 19". Let's hear from you.

THE SIDNEY TOOL CO., SIDNEY, OHIO

**Increase Production
With a
“Dalton Six”**



The "DALTON SIX" will not only increase production of small parts, but reduce the unit cost. Can be furnished with 30" or 36" bed, either two or three step cone pulley.

Furnished for either English or metric thread cutting.

No manufacturer producing small parts can afford to be without a "DALTON SIX."

Bulletin B-611 gives full specifications

Dalton Manufacturing Corp.
1911-15 Park Ave., New York, U. S. A.

The Universal Turret Toolpost

- ¶ The Universal Turret Toolpost has many features not found in other Toolposts.
- ¶ It will fit any engine lathe regardless of make.
- ¶ One size model is interchangeable between all lathes from 11" to 20" swing.
- ¶ More valuable than other Toolposts in that it mounts a greater number of tools.
- ¶ Tools are always clear from Chuck and working material.
- ¶ The Toolpost will finish a piece of work completely and perfectly in and outside with threading and cutting-off operations.
- ¶ All operations are made by means of one Chucking of the material or article, and without any change of tools.
- ¶ Another desirable feature — the Turret Toolpost is equipped with cutting-off blade in such position that the cutting-off operation can be made very close to lathe chuck. The spring behind cutting-off blade will prevent the tool from hogging and breaking off should the operator feed the work too rapidly.
- ¶ All external turning or cutting tools are independently adjusted when necessary by set-screw.
- ¶ Its adaptability appeals to shop foremen. The Toolpost is inserted in the tool slot of the compound rest, and threaded sleeve provides vertical adjustment of about $\frac{1}{2}$ " to accommodate it to lathes of various sizes swing.
- ¶ The Toolpost is furnished complete with one set of tools, consisting of one Knurling Tool, four $\frac{1}{2}$ " boring tools, four regular $\frac{1}{2}$ " square high-speed Toolbits, and one regular $\frac{1}{2}$ " high-speed cutting-off blade.
- ¶ The over-all dimensions of the Toolpost are 8 $\frac{1}{2}$ " long, 8" high and 6 $\frac{1}{2}$ " deep. It weighs only 18 lbs. It is rigidly constructed and can be handled easily.
- ¶ The Toolpost is made of the very best drop forged steel. The workmanship is guaranteed to be of the highest grade.

**Fits Any Lathe — No Changing of Tools
They Are Always In The Toolpost
Ready For Work**

Magna Machine Company
(Incorporated)

626 Driggs Ave., Brooklyn, N. Y.

Also Builders of High-Grade Special Machinery, Jigs, Tools, Gauges, Fixtures

Expert Pattern Makers

"Greenerds"



Over 30,000 feet of floor space are devoted to making nothing but Greenerd Arbor Presses, in all styles and sizes, with 15 pounds to 40 tons pressure. The steel mixture used in their castings gives them great strength. The "know how" of over 25 years experience gives them exceptional utility. Inquire of your dealer or write direct to—

EDWIN E. BARTLETT, - Nashua, N. H.

10 to 2000 Tons Force Applied

With Lourie Arbor and Power Presses

Baling Presses; Power Pumps;
Bulldozers; Hydraulic Ma-
chines; etc., etc.



We can build to
your order

Lourie Mfg. Co.,

Springfield, Ill.



No. 24 Press

Efficient Equipment Atlas Presses

for building and repairing
automobiles and
general machine shop
operations requiring
pressure up to 25 tons
and centering capacity
up to 38 inches.
For driving mandrels;
bending and straighten-
ing, broaching, emboss-
ing with dies, setting
bushings and many
other every day manu-
facturing jobs, there is an
Atlas Press. All sizes
for all purposes. It will
pay you to investigate.

Atlas Press Co.
317 N. Park Street,
Kalamazoo, Mich., U. S. A.

Cap.

20

Tons

Price

66⁰⁰

Net



WEAVER **Forcing Press**

WE ARE SPECIALIZING upon this one size and style of press. It is the ONLY press we make, therefore we are able to produce a better article at less money than were we compelled to carry the overhead necessary to produce a great variety of styles.

5-inch, 9-pound channel steel frame, 32-in. wide, 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

Net Price (32-in. Width) \$66.00

Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois

Immediate Shipment

From Toledo Stock

New General Electric Alternating Current Motors

A few of the items in our Stock:

220 or 440 Volt

60 CYCLE-3 PHASE

3—50 h. p.—	Type KT—	900 r. p. m.
1—100 h. p.—	" "	720 r. p. m.
1—150 h. p.—	" "	720 r. p. m.

25 CYCLE-3 PHASE

2—100 h. p.—	Type KT—	750 r. p. m.
1—100 h. p.—	" "	500 r. p. m.
1—75 h. p.—	Form M—	750 r. p. m., Slip Ring
1—100 h. p.—	" "	750 r. p. m. "

Write for Nagel Motor List No. 24


THE W.G. NAGEL ELECTRIC CO.
TOLEDO, OHIO

Made First For Ourselves

We are Passing a Good Thing Along



We needed some simple, strong, handy racks—just as you need them—for neatly storing in compact space the bar stock in our own plant, so we made for ourselves a few of—

"The Handiest Racks"

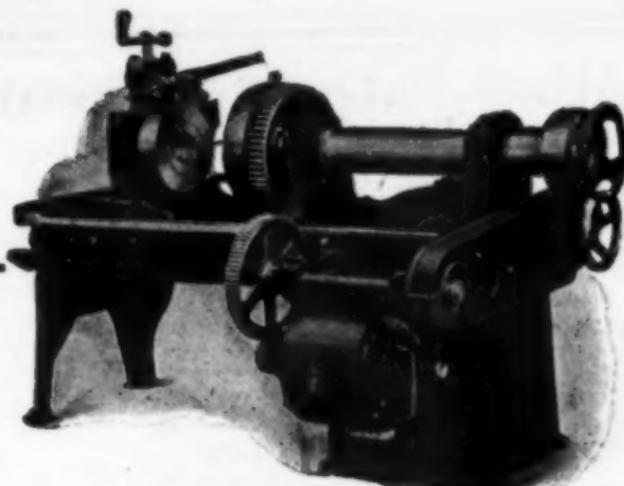
They are well named, too, for never have we taken so much comfort from such a moderate expenditure—as you would do if you had them. They hold several tons in one-quarter of the space, keep stock properly assorted, save time and keep the plant tidy.

Say the word and we'll ship on trial

Wm. S. Yohe Supply Co.

232 Second St., S. E.,

Canton, Ohio



(No. 3 Peerless. All Gears are Covered).

33 Years of Effort

Are Concentrated in the Improved
B. & K. Pipe Threading Machines

We have specialized on these machines, and have embodied many excellent conveniences in this combination of original ideas and first-class materials.

The 17 styles and sizes afford a wide choice. They are all fitted with the Peerless Adjusting Mechanism—nothing better made. A gear box drive eliminates all guess work regarding right threading speeds. Dies are changed without removing a screw. As to durability—they stand up to the hardest work, year in and year out.

*You ought to know the whole story.
Write for complete data, and judge.*

Bignall & Keeler Machine Works
Edwardsville, Ill.

Abbott Burnishing Process

Saves 75 to 99 Cents on the Dollar



The
Abbott
Burnishing
Barrel

DON'T KICK on the increasing cost of manufacture until you are ready to cut down cost where it is so easily done.

If you are hand-buffing small metal parts in any quantity, the Abbott Burnishing Process will reduce costs wonderfully.

It also improves quality, and neither bends, breaks or mars anything.

Write for Booklet and send samples for burnishing.

The Abbott Ball Company
Elmwood District, Hartford, Conn.

BALL AND ROLLER BEARINGS

All Types in Stock or to Order

English (Inch) and Metric Dimensions

BALL THRUST

JOURNAL ROLLER

ROLLER THRUST

TAPER ROLLER

ANNULAR (Ball Journal)

PRESSED STEEL

STEEL BALLS

Sole Distributors for the U. S. of

The Bowden Patent Wire Mechanism
Bowden Wire Ltd., London

THE GWILLIAM COMPANY

Engineers

MECHANICAL SPECIALTIES

253 W. 58th St. (at Broadway), New York, N. Y.

Branch Office: 1314 Arch St., Philadelphia



Makeshifts are Always Costly

In comparison with Terrell's Steel Lockers all wooden ones are of a "makeshift" character, and therefore expensive. Steel Lockers mean durability, convenience, sanitation, less fire hazard, less repairs and more room. The ultimate saving is sure.

Complete data is yours for the asking. Write us.

Terrell's Equipment Company
Hall & Division Sts., Grand Rapids, Mich.

The Metz Grinder

For Shop and Tool Room



THE METZ Tool and Surface Grinder is a large, accurate, rigid machine for general shop and tool room service.

The high carbon steel spindle runs in split conical boxes of best quality anti-friction phosphor bronze with adjusting nuts. Bearing surfaces are protected and ways are hand scraped. All working handles are in front. High grade in every way.

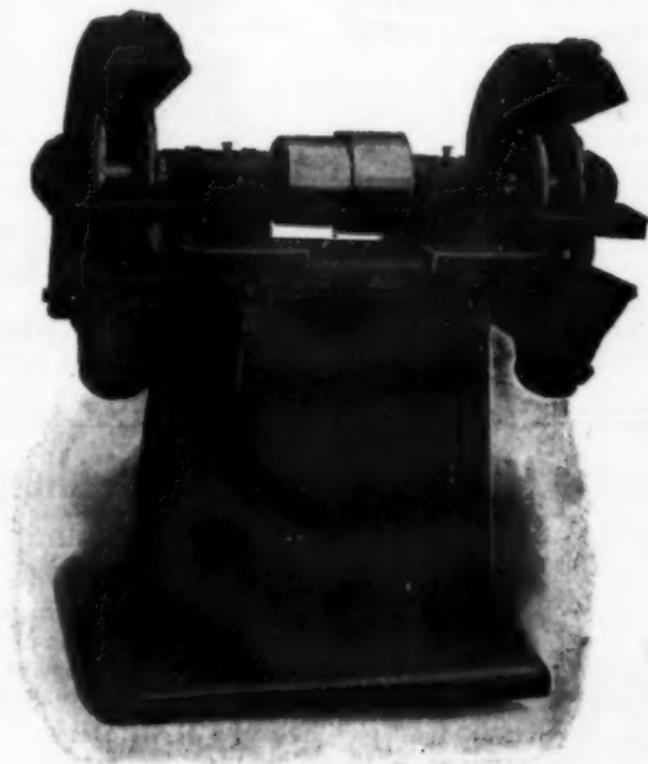
Want full description?

Metz Machine Tool Works

562 West Washington St., Chicago, Ill.



Grind it on a "Blount"



No. 6 1/2

Our eight sizes meet all requirements of general grinding work. The large bearings insure accurate work under continuous heavy load.

J. G. BLOUNT CO., Everett, Mass.

"STERLING"

GRINDERS

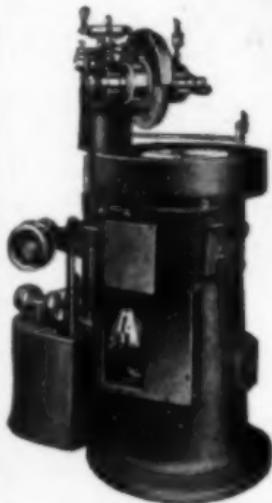
Universal Tool and Reamer Grinder

Built for close accuracy, speedy production and made completely universal in all movements. Table revolves entirely around head; wheel can be used at any angle—a profitable tool room grinder.

Ash



McDONOUGH MFG. CO., Machine
Tool Dept. **Eau Claire, Wis.**
YOUNG, CORLEY & DOLAN, Inc., 115 Broadway, NEW YORK CITY
New York District and Export Agents



Accurate Grinding Of Flat, Convex and Concave Surfaces

When in the market for a simple, durable, convenient machine for this purpose, it will pay you to investigate the—

Bristol 12-in. Rotary Precision Grinder

—of the Swivel Back type. We shall also be pleased to describe and quote on our Solid Back Grinder, an equally efficient machine for grinding flat work only.

The C. G. Garrigus Machine Company
Bristol, Conn., U. S. A.

A Complete Universal Grinding Outfit

with attachments for Cylindrical, Internal and Surface Grinding, and for all kinds and shapes of Milling Cutters, Reamers, Countersinks, Counterbores and other machine shop tools.



The Greenfield Universal Grinding Machine

is truly universal. It is difficult to think of a grinding job that cannot be done satisfactorily on this machine within its capacity. The attachments are simple, accurate and numerous; each is designed for a single purpose, and a large variety of work may be handled in rapid succession. The machine has ample stiffness, is well built, and sells at a price within the reach of every shop.

You had better get our literature

Greenfield Machine Company
Greenfield, Mass., U. S. A.

A surface grinder that's powerful, rigid and accurate

Especially designed and carefully built throughout for those who believe in the economy of good tools.



The "Manhattan"

is so massive and rigid that there is no vibration, yet it takes little floor space. The over-size phosphor bronze bearings give a none-vibrating wheel. The entire table is surface-ground with its own wheel. Both feeds have graduated dial.

May we send specifications?

Manhattan Machine & Tool Works
Dept. A.,

Grand Rapids, Mich.

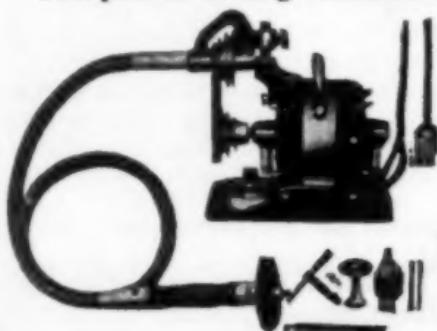
Strand Flexible Shaft Portable Grinder

Made in four sizes: 1-10, $\frac{1}{4}$, $\frac{1}{2}$, 1 H. P.

Adaptable for heavy or light grinding.

A universal portable flexible tool for every shop.

Tool post or drilling attachment and extra ball-bearing handle furnished also.



*Write
for
catalog
today*

R. G. Haskins,
547 Washington Blvd.
Chicago, Ill.



"WELLS"

Universal Grinders

Will keep all ordinary and most special tools and cutters in the pink of condition. Seven assortments of holding fixtures enable you to select just the equipment which your requirements call for.

The machine and attachments are well made and fully adjustable. The swivels, etc., are graduated. Yet the price is very reasonable.

**Write for Bulletin describing this
machine in detail.**

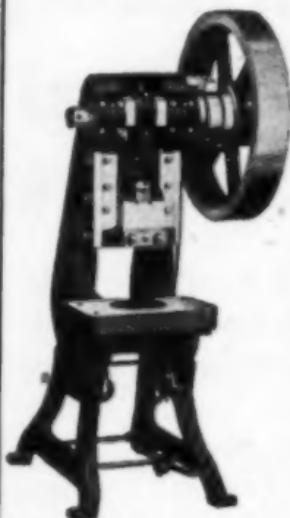


Greenfield Tap and Die Corporation
Greenfield, Massachusetts, U.S.A.

Machine Tool Division



Here Is A Press



With Plenty of Steam
Back of THE PUNCH

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and
inclinable types. Their great
power backed by rigid design
enable them to do the work
you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.



Fairbanks Hammers

25 to 300 lbs.

Belt or Motor Drive

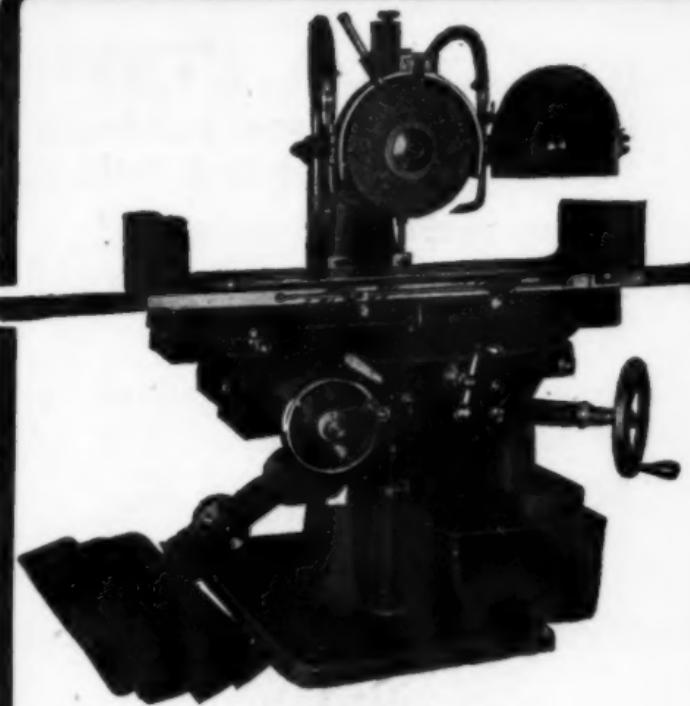
These Hammers Embody
a Design and Workman-
ship that are Unsurpassed.

Send for Catalog

United Hammer Co.
Oliver Building, Boston, Mass.

SALES AGENTS

The Fairbanks Company—Albany, Balti-
more, Boston, Bridgeport, Buffalo, Chicago,
Hartford, Newark, New Orleans, New
York, Philadelphia, Pittsburgh, Providence,
St. Louis, Syracuse, Havana, London,
Glasgow, Paris.



This
W. & M. No. 3 SURFACER
Capacity 8x24 Inches

Is Worthy of Investigation
Nearly 1000 In Service

Circulars on request

Wilmarth & Morman Co.

Manufacturers of Drill-Surface-Universal Grinders

1185 Monroe Ave., N. W., Grand Rapids, Mich., U. S. A.

Did you ever ask us to make those screw machine collets, with regular or irregular holes?

We are prepared to make good deliveries.

Why not try us next time?

Quantities never too small or too large to interest us.

Hardinge Brothers, Inc.
Chicago, Ill.



Hitchcock's List

Goes to the Heart of 96% of
the Best Plants in the Country

The above statement is the result of careful mail inquiries directed to thousands of the larger tool-using concerns.

When You Buy—Ask Questions

Ask Yourself—

If \$100 to \$500 extra for another cutter grinder is a wise investment by comparison with this one.

If you now have, or are likely to ever have a job this machine won't handle.

Ask Us—and Any Other Maker—

If the spindles are made of crucible steel.

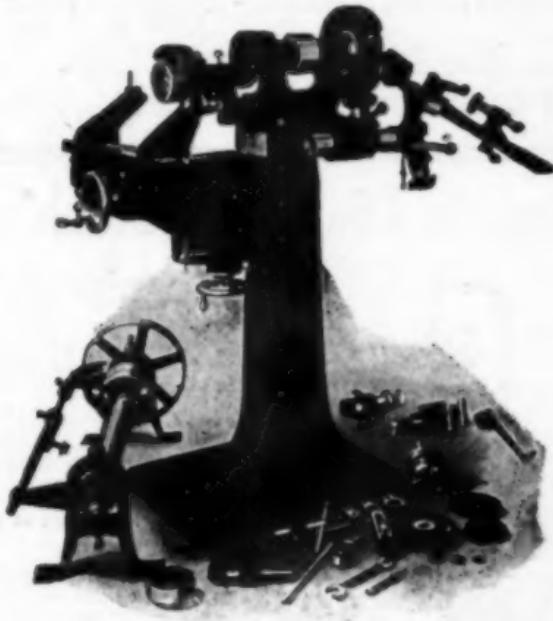
If all the spindle bearings are bronze.

If both cross and vertical feeds have dials reading in thousandths; what the size and kind of thread is and if they run in bronze nuts.

What is the size of the bearings.

What is the size of the ways.

**The More Questions You Ask
The Better for Both You and Us**



Get the circular today

Grand Rapids Grinding Machine Co.

17 Ottawa Ave., N. W.

Grand Rapids, Michigan, U. S. A.

Better—Cheaper—Safe to Use

B-G Case Hardening Compound

Produces File-Hard Steel of Excellent Color

There is no result obtainable with cyanide that can not be produced with B-G Compound, with greater satisfaction and at far less cost, and at the same time doing away with all deadly fumes.

While B-G compound is inexpensive, it is of standard quality, produces a steel that is file-hard, well penetrated and of excellent color, leaving it clean and without scale.

No new process required; use it exactly the same as cyanide.

Glad to explain in more detail. Will you write?

Bell & Gossett Co.

613 West 30th St., Chicago, Illinois

Rearwin Die Filing Machines



Stand for increased production in decreased time; better work with less experienced help; more service from the files, owing to release on up stroke; better dies, owing to a uniform degree of clearance on all sides.

Table is 39" from floor and 17" x 18" square, with inside yoke that tilts nine degrees in 4 ways, which is necessary.

Has two adjustable steel arms to use files from a 3" needle file to a 12" coarse file.

Will successfully handle small dies and fairly large die shoes, and is proving unusually handy and profitable in many other lines of manufacture.

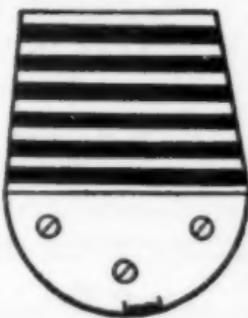
Circulars for the asking

W. D. Rearwin

341 Mill Ave., Grand Rapids, Mich.

MAXIMUM EFFICIENCY

In the Grinding Room Cannot
Be Obtained Without
RADNETICS



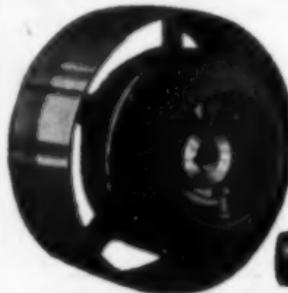
According to Grinding Room Superintendents who are using our Radnetic fixtures no magnetic chuck is complete without them. They are prime factors in shortening the set-up time where many odd shaped pieces must be held. They will also hold pieces at various angles. *Write for descriptive booklet.*

Sole Distributing Agents

LAWSON & COMPANY, Inc.
416 West 33rd Street, New York City

THE KAR ENGINEERING CO., INC., Manufacturers and Patentees

Why not use the
clutch that's stood every test?



Enclosed Type, Self-Oiling

**Edgemont
Friction Clutches**

have been tried and tested on thousands of heavy-duty machines for many years, and never found wanting (names of prominent users on request). They pull all that the belt will, at any speed; no springs or delicate parts; will not break under the hardest usage.

We cordially invite your most careful investigation

**The Edgemont Machine Co.
Dayton, Ohio**

Special Clutches and Transmission Machinery for all purposes



**Nestor
Vise**

Here are its Features:

Work is gripped almost instantaneously—moves from maximum to minimum with quick action sliding jaw.

For size and weight an extraordinary gripping range is provided.

Hole can be drilled at right angles without taking work from vise.

Special provision makes it impossible for jaws to cock up.
Immediate delivery.

Write for particulars, sizes and prices

**Nestor Manufacturing Co., Inc.
40 W. 13th St., New York City**

Alert Roller Grip Stub Arbors



Be up to the minute! Get a 25% increased production! Adopt ROLLER GRIP STUB ARBORS for your work. Don't waste your time driving Mandrels in and out of your work, let a ROLLER GRIP do it. Forget your arbor press. Stub Arbors made in all sizes.

Send for circulars (SA).

Alert Tool Company

237 North 6th St.,

Philadelphia, Pa.

**Use-Em-Up and Standard Type
Drill Sockets**

**All Kinds
All Sizes**

**Special
Tools Made
To Order**

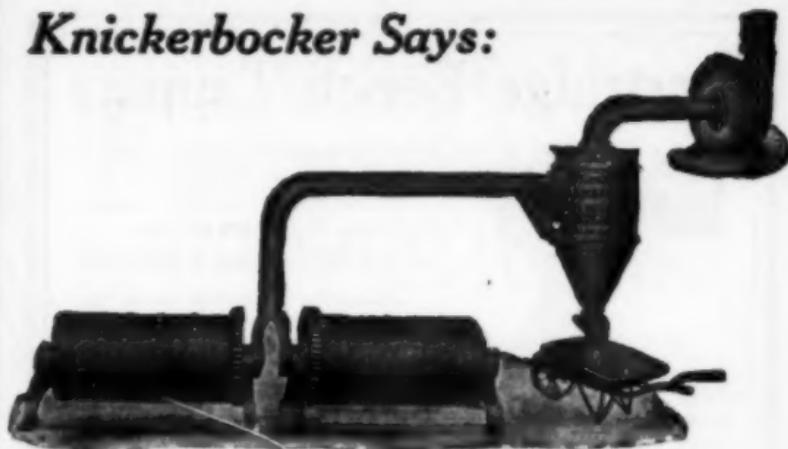
Use-Em-Up Type

**The Collis Company
Clinton, Iowa**



Standard Type

Knickerbocker Says:



They Re-Order—because

“Rarefieds” Give Thoro Satisfaction

“Not Occasionally, but almost invariably do firms re-order “Rarefied” Dust Collectors. At present a portion of the score reads something like this:

Solvay Process Co.	22
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.	21
Weston-Mott Co., Flint, Mich.	12
Willis-Overland Co., Toledo, Ohio	10
Oliver Chilled Plow Works, South Bend, Ind.	9
Pittsburgh Plate Glass Co., Pittsburgh, Pa.	9
General Electric Co., Schenectady, N. Y.	7
Fort Wayne Electric Works, Fort Wayne, Ind.	5
Sutton, Steele & Steele, Denver, Colo.	5
Buick Motor Co., Flint, Mich.	5



“Unsurpassed efficiency, economy and durability made the above record possible. They had to make good in these plants, and they will make good in yours.”

Send in your name for our Booklet

The Knickerbocker Co.
Jackson, Mich.

Partridge Bench Tappers



Well made, handy and reliable. Practically every machine shop needs one. The No. 1 taps to $\frac{3}{4}$ in. No. 2 taps to $\frac{5}{8}$ in.

Small Turning Lathe Sets

All parts accurately made and fitted; bottoms planed true with centers. Pulleys crowned and turned inside. Bearings of Nos.

1 & 2 are of cast iron; Nos. 3 & 4 are babbitted. The four sizes swing 6, 8, 11 and 13 in. Handy for polishing small metal parts, and wood-turning. Glad to receive your inquiry for description and prices.



Write me about your requirements

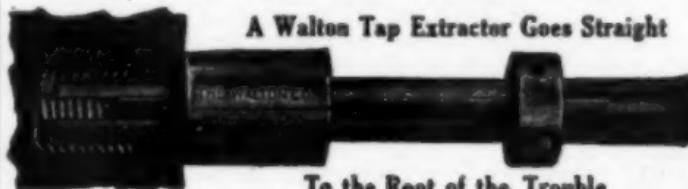
E. O. PARTRIDGE, 2041-2049 CHICAGO
W. Lake St.,

Also Bench, Column & Cabinet Grinders, Polishing Lathes, Light Punch Presses, Hollow Mills, Countershafts, Chuck Arbors and Saw Mandrels.

Fishing

For Broken Taps Wastes Valuable Time

A Walton Tap Extractor Goes Straight



To the Root of the Trouble

When your high-priced machinist breaks a tap it's dollars to doughnuts that he tries to remove it without the foreman's knowledge. In this game of camouflage he wastes a lot of your valuable time.

This inexpensive device does away with that temptation—it saves time, money, temper, and those exasperating delays on rush jobs.

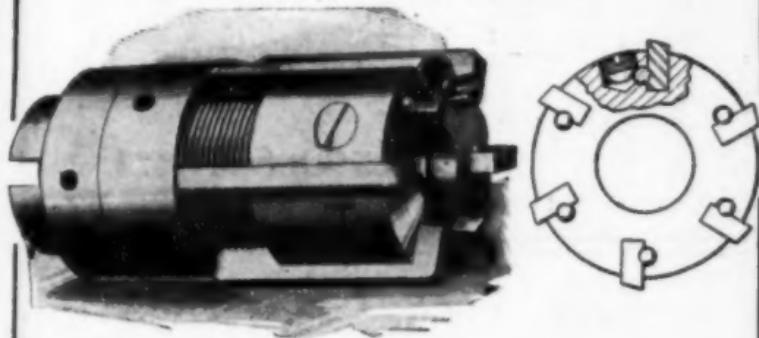
A 60-day free trial and folder for the asking

THE WALTON CO., Hartford, Conn.

McCrosky
COST CUTTING TOOLS

ANNOUNCING The SUPER Reamer

The crowning achievement of many years' experience in the manufacture of high grade adjustable reamers.



Large, accurate adjustment.

Blades locked in position by a positive, powerful, double-locking principle that is unequalled for simplicity and strength.

Blades are moved forward to increase reamer diameter instead of backward as with other reamers.

High speed blades. All styles and sizes from 15-16" up.

The McCrosky Reamer Co.
Meadville, Pa., U. S. A.

McCrosky
COST CUTTING TOOLS

NICHOLSON EXPANDING MANDRELS



Save from one to ten minutes on every piece machined on a lathe, miller or slotter.

One set of nine fits any round or square, straight or tapered hole, from $\frac{3}{4}$ in. to 7 in. diameter.

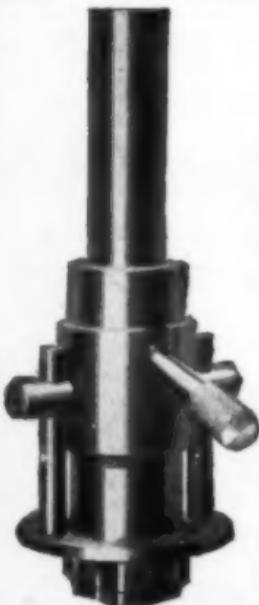
Quick to insert, quick to remove.

Will loan you one for thirty days. Write for it NOW.

W. H. NICHOLSON & CO.
117 Oregon St., Wilkes-Barre, Pa.

Efficiency And Promptness

The efficiency of the Murchey Threading Tools and the promptness of our delivery of Chasers—"Murchey Service"—means to our customers a good deal more than words. It means good tools and the certainty that they may be kept constantly in use without exasperating delays.

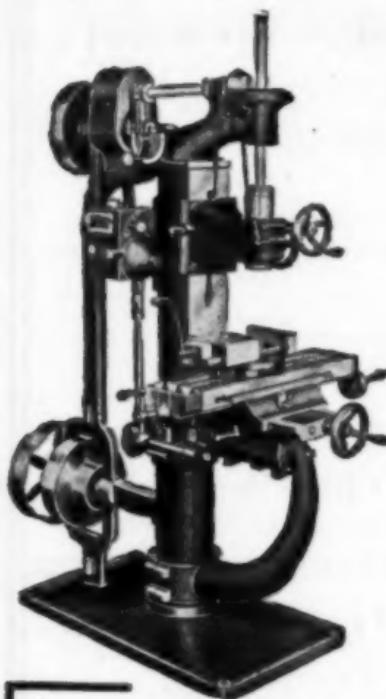


Murchey Collapsing Taps
and Self-Opening Dies
are standard everywhere. You can
get no better threading tools. They
are guaranteed to produce accurate,
uniform threads at the highest pos-
sible speeds.

If in doubt, try us out
Murchey Machine & Tool Co.
58 Porter St., Detroit, Mich.

SAVES

In Many Plants
In Many Ways



SOME STUNTS:

- Centers Shafts
- Mills Die Blocks
- Makes Forming Tools
- Mills Beveled Ways
- Used as Drill Guide
- Mills Out Metal Core Boxes
- Mills Oval Depressions In Die Plates
- Mills Flat and Angle Surfaces

A Knight Milling and Drilling Machine

is a super-convenient tool. The above are just a few samples of its great usefulness in tool room and machine shop. It mills, bores and drills at any angle with only one setting of the job.

Customers say Knights return their cost in a comparatively short time. You have a choice of three sizes—large, medium and small.

An interesting, illustrated folder on request

W. B. Knight Machinery Co.
3920 W. Pine Blvd., St. Louis, Mo.



**A Set of Three
Allen Tap Extensions
Adds from 1½" to 11"**

to the length of the shank, in six different combinations. They are made in lengths of 2", 4" and 6", and may be used on all standard taps from $\frac{1}{4}$ " to $\frac{3}{4}$ ".

The Economy of These Extensions

is apparent at a glance, as they add so much to the effectiveness of the ordinary tap without the expense of having special taps made with long shanks. With a set of Allen Tap Extensions in your tool chest, you are always insured against getting caught without the proper equipment for tapping holes of any desired depth.

They are worth more than the price

ALLEN MFG. CO., Hartford, Conn.
Makers of the Allen Safety Set Screw

**True Running Taps
Don't Break**

"Wear Ever" Tap Chucks drive taps true regardless of the variation in the size of shanks, thereby reducing tap breakage to a minimum. They insure a positive drive for all sizes of taps.

Much Time Is Saved, because it has no screws to adjust, hence no time is lost in setting for different sizes. It's as handy and easy to use as a drill.

This Low Priced Chuck is made of one piece and hardened, and will outwear several friction tap chucks. As it is easily the best device on the market you make no mistake in ordering now.



Scully-Jones & Co.

Room 555 Railway Exchange Bldg., CHICAGO

The "Cinti" 12-Inch Automatic Tapper And Drill

Accurate and Fool-proof
Made in Bench and Floor Type



Patents Allowed and Pending.

The clutch and reversing mechanism can be set to run tap the desired depth, to reverse and to stop the spindle automatically.

Being automatic in its entire operation, it does accurate work in the hands of an unskilled operator, without stripping threads or breaking taps.

The belt tension is simply and easily adjusted for light tapping in soft metal.

Thoroughly well built, with box-section column, bronze bearings, carbon steel spindle, and hardened contact points in clutch and trip mechanism.

May we send you the complete description?

W. H. Simmons & Company
208-12 Lawrence St., Cincinnati, Ohio

Hit the Bottom with Your
Tap—the Double Gripp
Safety Tapping Chuck
Won't let it Break



*Has been Saving Time, Taps and
Material for Years*

Made in Reversible Tapping Attachments Also.

William L. Procunier
547 Washington Blvd., Chicago, U. S. A.

AIRCRAFT

Manufacturing Plants Require
These Keyseating Millers and
They are Being Used.



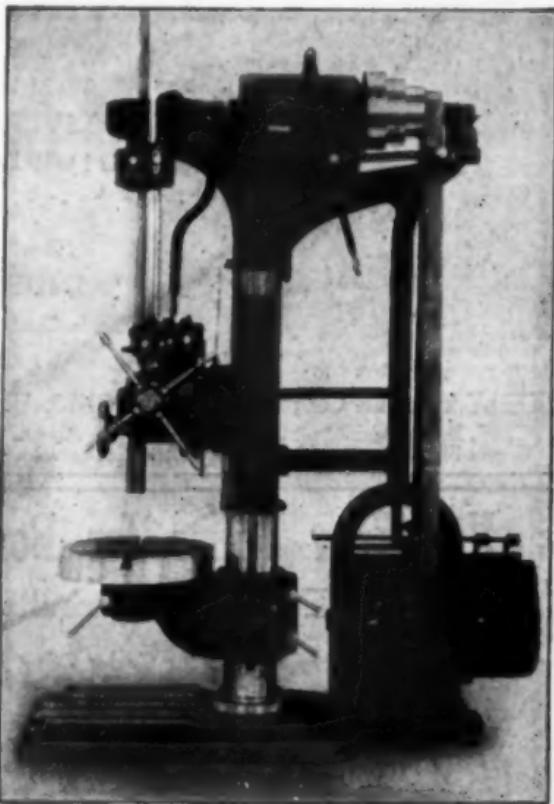
Write for Catalog O

National Machine Tool Co.

2266 Spring Grove Ave., Cincinnati, O.

The New "Weigel" 25-Inch

A Drilling Machine With a Purpose



THE PURPOSE behind the designing of this tool was a desire to combine in one drilling machine the practical results of all the knowledge which we have acquired in our long experience of thirty years.

It is solid and substantial, without being clumsy. It has every modern convenience for facilitating production, without impairing its extreme simplicity. It is rugged, convenient, powerful and durable—a drilling machine which does things, accurately and rapidly.

The specifications tell the story. May we send them?

Weigel Machine Tool Co., Peru, Ind.



Kelly PRODUCTION Tools

for Cylinders,
Crank Cases,
Connecting Rods,
Auto Parts, Etc.

We Make
DELIVERIES
in 1 to 10 Days

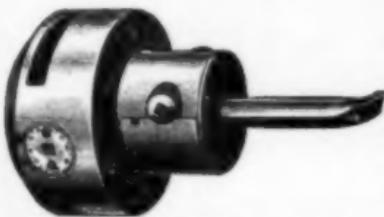
They
"ADJUST"
Write for Catalog G-H

TRANSMISSION CASE TOOLS 113 OPERATIONS
FOR MOLINE PLOW COMPANY
J. W. DAVIS, GENERAL SUPERVISOR THE KELLY REAMER CO.

THE KELLY REAMER CO., CLEVELAND, OHIO, U. S. A.

C. W. Burton, Griffith & Co., London, English Agents.
Burton Fils, Paris, French Agts. 40 Domestic Agencies.

Yes, Use Your Miller for Boring And Obtain Even Better Results

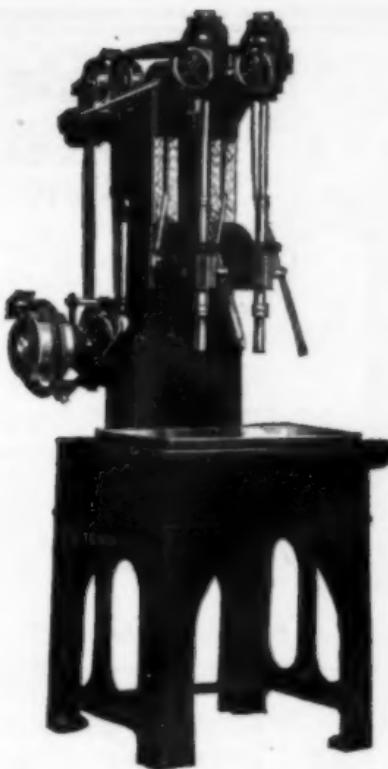


The Casler Offset Boring Head makes this possible. It is compact, rigid and handy for boring holes to size in jigs, tools, fixtures or any irregular shaped pieces, at a big saving in time.

It enables you to use the vertical and horizontal adjustments provided on the machine. The micrometer adjustment of the offset is graduated to $.001"$. Unequalled for enlarging and recessing holes, or for truing up inaccurately bored holes.

*Styles and sizes to meet practically all requirements
are shown in Catalog C. Write for details—
glad to send them*

MARVIN & CASLER CO., Canastota, N. Y.



With
One
to
Eight
Spindles

For
3/4-in.
Drills
and
Smaller

The Facts

Favor H. & W. Drilling Machines

When drilling holes, it is not what a machine should do theoretically that counts, but what it actually accomplishes. It is facts only that count.

It is what they do under severe competitive tests that has led so many large concerns to standardize on Henry & Wright's. One of them has over 2,300 H. & W. drilling spindles in operation.

Particulars—and our Feed and Speed Chart—both free

The Henry & Wright Mfg. Co.
708 Windsor St., Hartford, Conn.



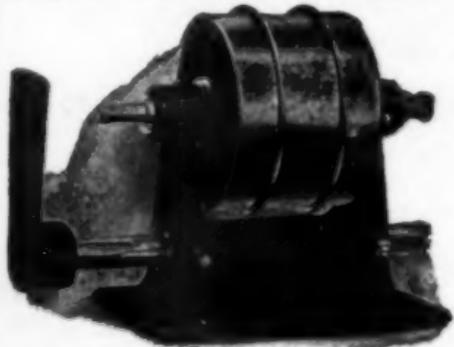
**Burke Quality
Excels on
Fine Points**

Machines of
Burke Quality
are never built
with any name
cast on the
frame but our
own—

**BURKE
CONNEAUT
U. S. A.**

For Sale Everywhere

**This Tapping Machine
Now Has Greater Capacity**



Burke's
No. "D" Taps
 $\frac{5}{8}$ " Holes
in
Horseshoe
Steel

BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$50.

Send for details today

The Burke Machine Tool Co., Conneaut,
Ohio

The New and Improved 20th
Canedy-Otto Power Drills

Are Tools of Special Merit

THE BEARINGS in Canedy-Otto Drills are large, the best of babbitt metal being used, with *hydraulically pressed Graphite Cones*, which increase the life of the bearings from 300 to 400 per cent.

The same care is used throughout in both the construction and selection of materials. The gears are cut on automatic machines, which guarantees accuracy and smooth running for drilling holes up to 1½" in., and the simple, up-to-date design as a whole insures abundant strength and generous capacity. Equipped, if desired, with a powerful direct-connected motor, with all-spur-gear drive; also with improved tapping attachment.

Write for illustrated circular, showing several types

Canedy-Otto Mfg. Company
Chicago Heights, Ill.

Manufacturers of Forges, Blowers, Drills, Lathes and Grinders.

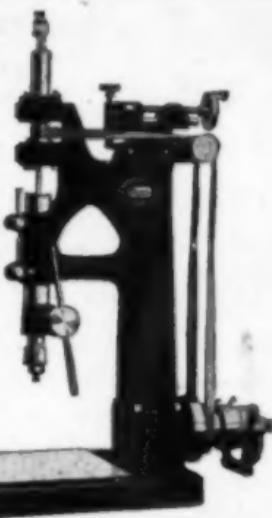
Drilling Economy

At 12,000 R. P. M.

The superior scientific construction of Demco High Speed Sensitive Drills makes for the greatest and surest all around economy. It means maximum production and minimum drill breakage and consequent loss of time. All-ball-bearings—practically no vibration.

Also made in floor type, with one to four spindles.

*To know it is to want it
Write for complete data*



The DeMooy Machine Company
708 Frankfort St., N. W. Cleveland, Ohio



IMPERIAL WELDING & CUTTING EQUIPMENT

Absolutely indispensable in machine shops, foundries, structural and ornamental iron works, repair shops, electric or steam railroad yards, garages, boiler and tank works, etc. Imperial Equipment speeds production in process work—repairs broken or worn tools, machinery or equipment in a surprisingly short time.

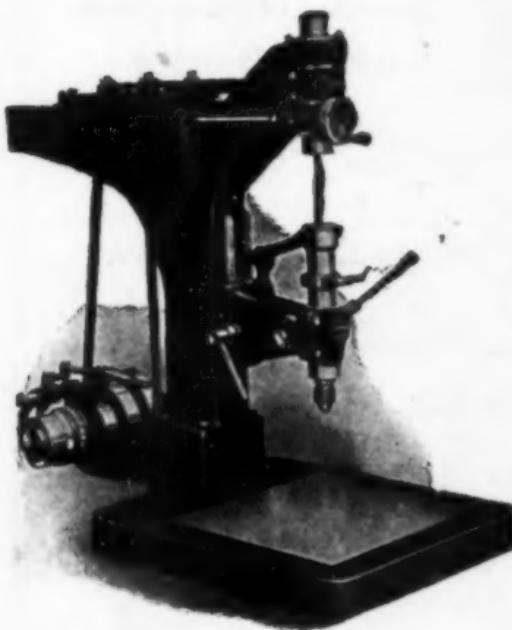
Many shops have saved its entire cost in one or two operations. Entirely portable—take it anywhere—always ready.

No other equipment has a mixing principle like it—scientific, practical, years ahead of the others. No other has a regulator that so accurately and uniformly controls delivery of gas, from lowest to highest pressures. No other can approach the Imperial Torch for great working range with one unit.

Catalog giving operating costs, etc., mailed on request

The Imperial Brass Mfg. Co.
528 So. Racine Ave., Chicago

THE *Avey* BALL BEARING DRILLING MACHINES



Hundreds
of
Shops
are
Modernizing
their
Drilling
Departments

Enormous Increase In Output

in drilling small holes may be obtained by using the No. $\frac{1}{2}$ machine above shown

Spindle Speeds Up To 12000 R.P.M.

We have other sizes and types including automatics to enable specializing on any job

The Cincinnati Pulley Mch. Co., Cincinnati



“Buhr” Drill Heads

Adjustable and Fixed Center

All-Ball-Bearing

Adjustable from 2 to 12
spindles.

Fixed center, any number
of spindles.

We guarantee our Heads
to stand up to capacity.

Nelson-Blanck Mfg. Company
Detroit, Mich.

Adjustable Drill Heads



The illustrations
show the maximum
and minimum ad-
justments of the Sel-
lew Adjustable
Drill Heads as reg-
ularly furnished.

We also make
Special Heads.

Write for complete
information.



Sellew Machine Tool Company
Pawtucket, R. I.



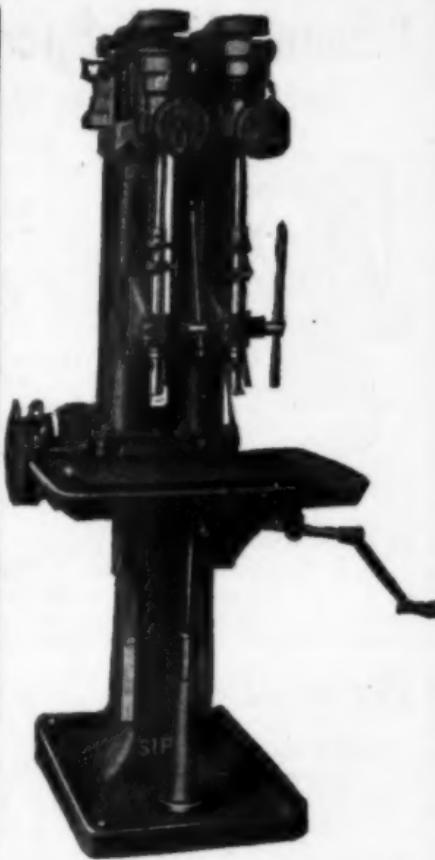
FEATURES

Quick Change Speed
Change in 2 seconds

Most Efficient Drive
No belt troubles

Safety First
All parts protected

Heaviest Drill Made
Yet very sensitive
All Ball Bearings



**What
Users
Say:**

A. T. Hinman, Inc., Philadelphia, Pa.
Says:

"We are pleased to advise that
The Sipp is undoubtedly the
best drilling machine we have
in our shop."

Write for Bulletin No. 4 telling why

The Sipp Machine Co.
Keen Street, Paterson, N. J.

"Fenn" High Speed Sensitive

Spindle Speeds up to 15,000 R. P. M.



For very sensitive drilling and the finest work.

Feeding is done with lever direct connected to spindle sleeve.

A counterbalance to weight of lever, sleeve, spindle and chuck gives the operator an unusually sensitive control of the pressure he puts on the drill.

Fitted throughout with SKF ball bearings.

Write for specifications

FENN MANUFACTURING CO.,

Hartford, Conn.

Cable Address "Fenn." West. Union Code

W. L. Fenn. W. A. Fenn.

Bench Drills

with 1 to 4 Spindles

$\frac{1}{2}$ " Capacity.

Floor Drills

1 to 7 Spindles

$\frac{1}{2}$ " to $\frac{3}{4}$ " Capacity.

Power feed on as many spindles as you want.



Francis Reed Co.

43 Hammond St.,

WORCESTER, MASS.

The AURORA—

The Drill With the Pull

The "Aurora Line" of Upright Drilling Machines is made in sizes from 21" to 36". The picture shows the 24" and 26" Aurora, with back gear, geared feed and automatic stop.

To say that the Aurora is "the drill with the pull" is no mere catch-phrase. Many an expert has confirmed our claim that the Aurora has the *greatest pulling capacity*, because of the large pulley diameter and ratio of gearing. This is also borne out by the experience of users who seek the largest possible output.

The table bearing is of extra size, which prevents tilting if operator forgets to clamp it. Feed gears are of special semi-steel having a high percentage of manganese and carbon, encased and running in oil. Worm wheel drops automatically, giving a positive release from the worm. Patented tapping attachment, compound table, drill lubricating outfit, and motor drive if desired. And the price is right.



Write for description of the size you need

The Aurora Tool Works
Aurora, Indiana, U. S. A.

Giddings & Lewis (Fosdick Design) Boring, Drilling and Milling Machine

A Tool of
Precision

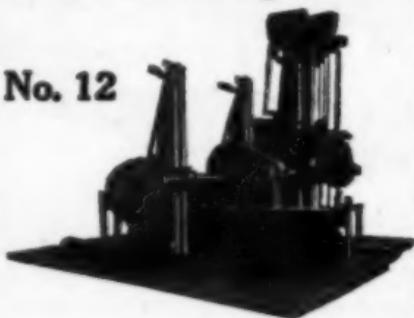


A self-contained machine of greatest rigidity, with direct drive and centralized control, noted for its accuracy, big capacity and ease of operation. *Specifications upon request.*

Giddings & Lewis Manufacturing Co.
Fond du Lac, Wis., U. S. A.

P. & H. Drilling and Boring Machine

No. 12



1. Rapid traverse in each direction can readily be manipulated by slight adjustments on the hand wheel.

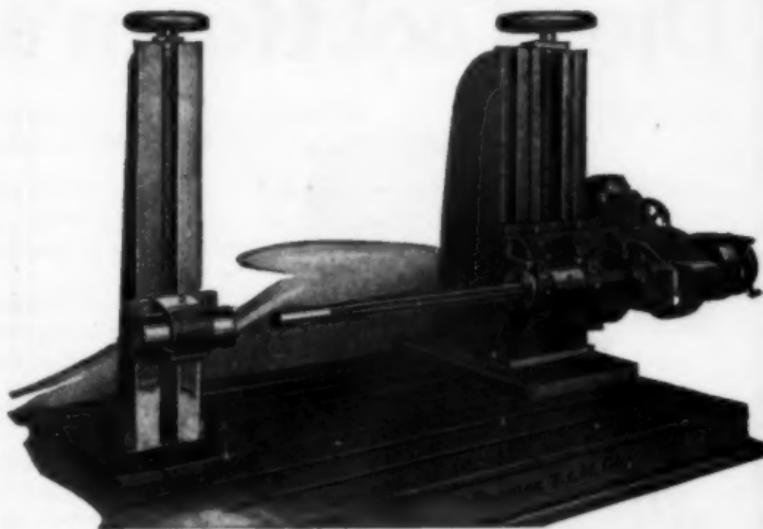
2. The spindle speeds are obtained by quick change gears and variable speed motor for either A. C. or D. C. current resulting in the following speed variations:

**A. C. Current, 12 to 542 R. P. M.
D. C. Current, 10 to 445 R. P. M.**

3. The four changes of feed available for each speed are made by the operator without leaving his position near front end of spindle.

Pawling & Harnischfeger Company
Milwaukee, Wisconsin

The Work It Will Do Is What Counts



The Pedrick Column Boring Machine

The boring bar travels as in any boring machine or a cutterhead feeds along the bar. This combination is an exclusive feature of our machine and has wide application.

Strength, power and simplicity are other important features.

Send for our new circular.

Fill out the coupon, attach it to your letterhead. The circular will come by next mail.

Pedrick Tool & Machine Co.
3644 N. Lawrence St., Philadelphia, Pa.

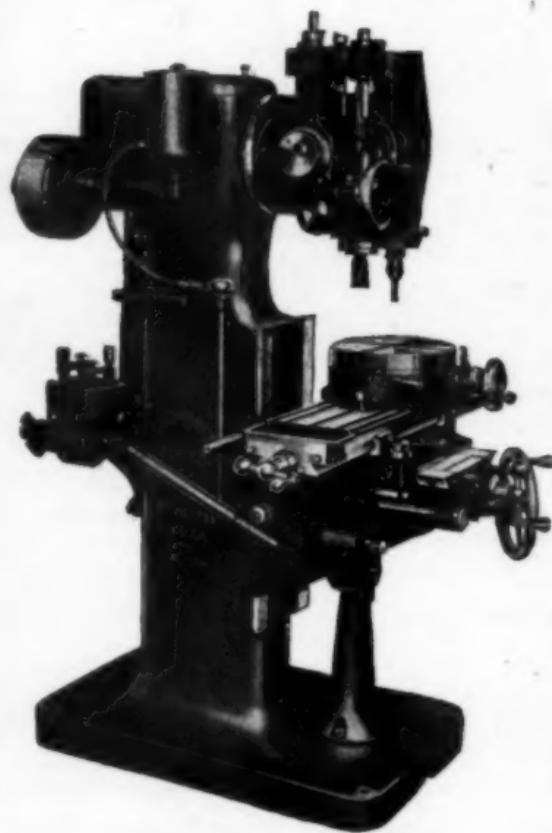
Please send us circular of your Column Boring Machine.

Name.....

Address.....

Attention of.....

Two Notable Time Savers—
Die, Tool Room and



No. 14 Universal Shaper

The Cochrane-Bly universal features, the he

While this machine moulds, etc., it has ample fore is proving highly va

It is being used in machining breach blocks accurate keyways in aircraft in other lines of producting performed with stand

The adjustments in movements, especially wh are employed, provide for at one setting; thus an liability of costly errors.

Accurate filing is in
ing Machine, which will etc. It is a real necessity
tive work where finish is delicate to be machined

Investigation will sh
will have actually cost an
they will go on earning
them. The principle is
rapid, exact and relatively
slow and expensive hand
which has always required

Don't let these get by you;

Cochrane-Bly Company, : :

vers and Result Producers for and Productive Work

chane-Jly No. 14 Universal Shaper is a precision machine with combination and features, the heads being adjustable for working at any desired angle.

This machine is designed primarily for accurate work on dies, jigs, tools, metal patterns, it has ample reserve power for coarse cuts for the rapid removal of stock, and therefore highly valuable as a productive tool as well.

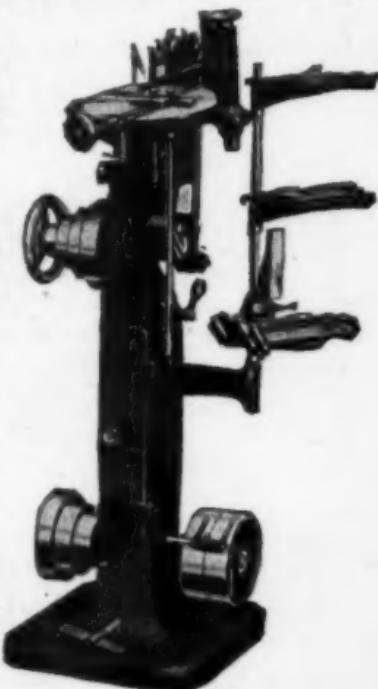
ng used in arsenals to splendid advantage for each blocks for large guns, also for cutting ways in airplane gears having taper holes, and of productive work—all the operations being done with standard equipment.

ustments in conjunction with the range of table especially where circular and compound tables provide for many operations being performed ; thus an economy in time and much less costly errors.

e filing is simple and easy with the No. 2 Filing machine which will also do metal jig-sawing, lapping, a great necessity in the tool room, and for production where finish is required on duplicate parts too machined in the ordinary way.

tion will show that neither of these machines will cost anything after a few months' use, but on earning money for you as long as you use the principle underlying both is the substitution of relatively low cost machine operations for expensive hand labor, on a peculiar class of work always required especially skillful workmanship.

by you; write for more details



No. 2 Filing Machine

∴ ∴ ∴ Rochester, N. Y., U. S. A.

“Van Dorn”

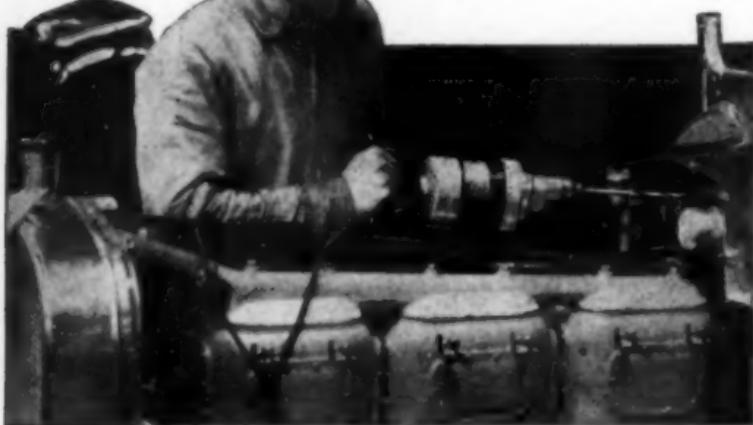
Portable
Electric Drills

As production accelerators they are not surpassed by the best automatic machinery, and their peculiar “Van Dorn” construction makes them reliable—they stay on the job.

The *Van Dorn* Electric Tool Co.
Cleveland, O.

Agents in Principal Cities

Write for Catalog H. M. T.



Specify Cutters
B&S



MORE GEARS PER CUTTER



EVERY time a cutter takes a trip to the grinding wheel its period of usefulness is lessened in exact proportion to the number of resharpenings it will stand.

Brown & Sharpe Cutters

will stand up under the heaviest of service for long periods between resharpenings and stand many, many trips to the grinding wheel owing to the way teeth are cut and relieved. That's why their use in your gear cutting department will result in more gears per cutter.

Send for Catalog 27.

It's a reliable guide to a reliable cutter service.

**BROWN & SHARPE MFG. CO.,
PROVIDENCE, R.I., U.S.A.**

ELECTRIC EUCLED HOISTS

Let OUR Engineers Save YOUR Time

It is possible that you realize the need of modern material handling equipment but cannot spare the time or men to work out the details.

Our engineers are constantly solving these difficulties and helping manufacturers reduce expenses.

Furthermore, this service is absolutely free.

Will you take advantage of it?

The Euclid Crane & Hoist Co.

LOST: Much Valuable Time

In Shops Not Equipped With Canton Cranes



WHEN you consider that one Canton does the work of from 6 to 10 men, you will readily see that plants not using

"The Handiest Tool In the Shop"

are losing a great deal of valuable time. Machinery, heavy castings, etc., are handled with ease and safety.

Many Sizes. Write for Booklet E-8

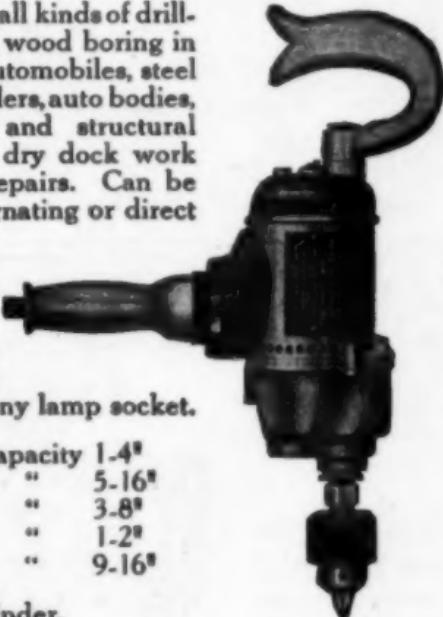
CANTON FOUNDRY & MCHE. CO., Canton, O.

Thos Universal Electric Drills

Licensed Under Burke Universal Motor Patent

Indispensable for all kinds of drilling, reaming and wood boring in the building of automobiles, steel and wood cars, boilers, auto bodies, and in railroad and structural shops, ship and dry dock work and machinery repairs. Can be operated on alternating or direct current, 110 to 250 volts. Furnished with cord and suitable feed attachment ready for immediate use. Attach to any lamp socket.

000	Drilling Capacity	1-4"
00	"	5-16"
0	"	3-8"
01	"	1-2"
1	"	9-16"



No. 6 Electric Grinder.

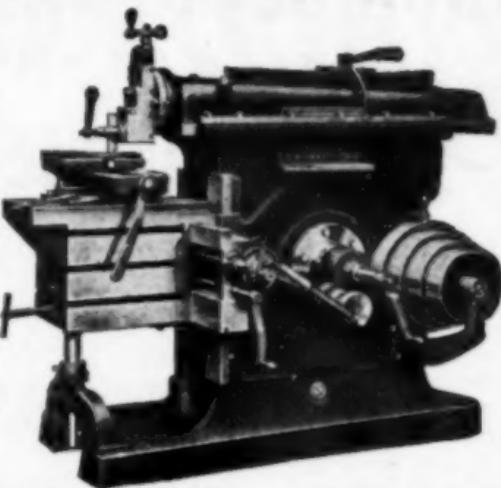
Independent Pneumatic Tool Company

Chicago New York Pittsburgh Detroit
San Francisco Birmingham Montreal

SHAPERS

12⁸, 14⁸, 16⁸
Plain Crank,
16⁸, 20⁸, 25⁸
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24⁸, 28⁸, 32⁸
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B, Cincinnati, O., U.S.A.

Shapers

The best medium
priced Shaper on
the market.

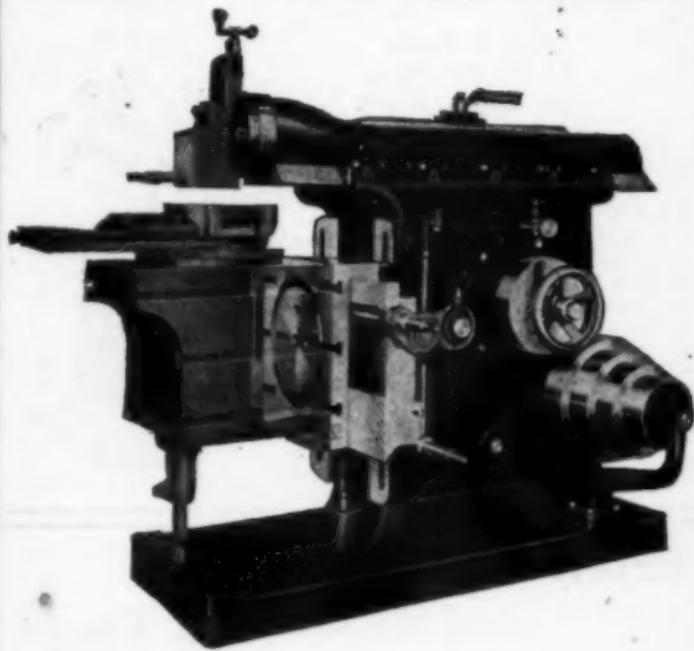
Built in 16⁸, 18⁸,
and 24⁸ sizes, all
back geared crank
machines.

A few for early
delivery.



The Osborne & Sexton Mchy. Co.
Columbus, Ohio

Milwaukee Shapers



MILWAUKEE Back-Geared
Crank Shapers are built in
16-in., 20-in. and 24-in. sizes.

UNEXCELLED in Rigidity,
Accuracy, Power, Production
and Simplicity.

Milwaukee Shaper Co.

1144-1146-1148 Holton St., 518 Prairie St.,
Milwaukee, Wisconsin

The Improved Rhodes Combined Shapers and Slotters

2-in-1 Tools
At a Low Price
For Small Work

Built like big machine tools, with all the essential features of the larger machines.

But they cost less.

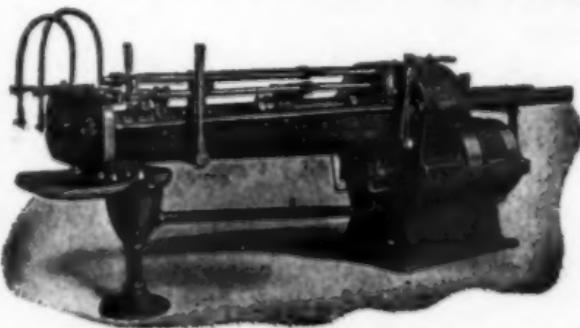
Remarkably efficient and economical in shaping and slotting light work—in making tools, dies, models, etc. Built vertical, horizontal, and a combination of the two.

Don't miss this opportunity of reducing costs. Send for details today.



Rhodes Mfg. Co.
Hartford, Conn.

Broaching Machines And Broaching Tools



Our Famous Double Machine

The Most Complete Line in The World. We make our machines in 5 sizes and 11 types. *Send for particulars.*

THE J. N. LAPONTE CO., - - - New London, Conn.

"Peerless"—A New Standard In High-Speed Metal Cutting



Some of the older metal-cutting saws were "standard" in their day, and deservedly so, for they were as good as the market afforded before the advent of the "Peerless."

But older standards mean nothing to you when "Peerless" users report *an increase of 50 to 100 per cent* in production over the metal-cutting saws which previously had been considered the best in the market.

Many such customers have ordered more "Peerless" Machines *by express*, when they could have secured some of their old favorites from stock, and at that they saved time, labor, blades and costly material, while insuring a larger production in the same floor space.

*Order a "Peerless" on 30 days' trial
If it fails to make good we pay freight both ways*

Peerless Machine Company
1609 Racine Street, RACINE, WISCONSIN

A Really High Speed Saw

Marvel No. 4

Cuts 6-in. round cold rolled steel in 10 minutes; smaller sizes in proportion.

Cuts on draw stroke only with any desired pressure, and with quick return.

A strictly high-grade tool, improved right up to the minute—the kind that it pays to buy.

Also other Hack Saws, Punches and Shears.

Write for Circulars



Patent Applied For

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Peter Bros. Abrasive Metal Cutter

Cuts Steel Quickly Without Waste

SOON PAYS ITS OWN COST because it saves the waste of valuable material from notching, breaking and grinding, and the greater waste of time. Simple, inexpensive, and thoroly effective. Hard steel, forming tools, drills, reamers, as well as tubes, rods and bars of brass, copper or aluminum, are cut smooth and square. Temper is not drawn.

8" Size \$17.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to $\frac{3}{8}$ " square.

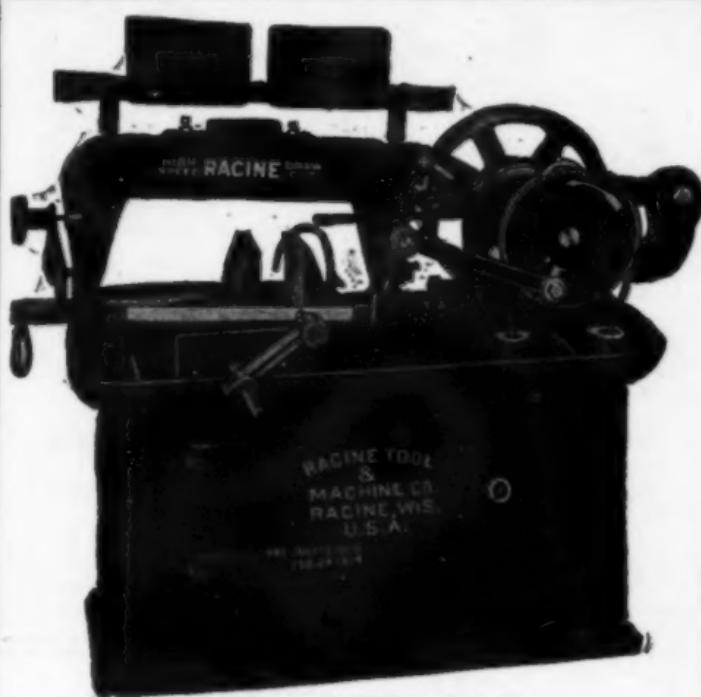
12" Size \$50, with C. S.
. Cuts up to $2\frac{1}{2}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.





Standard the World Over

"RACINE"

High Speed Metal Cutting Machine

The only high speed metal cutting machine on the market that is absolutely positive in every action and will duplicate itself in every cut during the entire life of the machine. All wearing parts are adjustable and accurately machined.

We make a complete line—25 Types—a machine for every purpose—either belt or motor-driven. These machines are equipped with three-speed transmission when desired, enabling you to cut any metal at the proper speed.

Racine Tool & Machine Co.
Racine, Wisconsin, U. S. A.



We manufacture a great variety
Lathe Chucks, Drill Chucks, Centering Chucks
Also
Portable Jaws for Lathe face plates and Machine tables.

Let us send you our Catalog

The Cushman Chuck Co.
Established 1862 Hartford, Conn.

Barker Wrenchless Chuck

Saves Time Between Cuts

Speed of an air chuck, at far less cost, with special advantages that are all its own.



The work is centered automatically and chucked with one movement of lever. It holds delicate work as lightly as desired and the more substantial work with an unshakable grip, governed entirely by the lever pressure, which a child could operate. *It may also be used for bar work*, changing from one size bar to another by a simple adjustment of jaws; slight variations require no adjustment.

Write for description of this big time saver

Thomas Elevator Company
22 S. Hoyne Ave., Chicago, U. S. A.

JACOBS IMPROVED DRILL CHUCKS

Our Rapid Growth

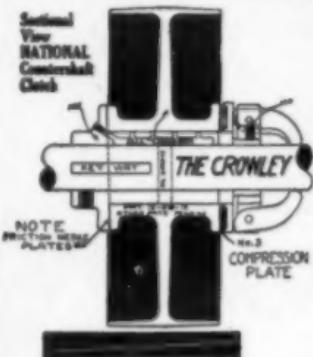
has been like an ever growing circle. Those who once used Jacobs Improved Drill Chucks have used them again, and have recommended them to others. They, in turn, pass the good word along. Thus the circle has ever widened, because *it is centered upon real merit—“The Chucks without a Weakness.”*

*If you can use good Drill Chucks,
let us send you the Catalog*

The Jacobs Mfg. Company
Hartford, Conn., U. S. A.



Crowley Friction Wedge Clutches



No. 1—Circular oil chamber keeps clutch freely lubricated at all times.

No. 2—Transversely Tapered Friction Plates, used only in National Clutches.

No. 3—Compression Plate; no pulling power on these plates, used only as a cushion.

No. 4—Three toggles, giving equal pressure on compression Plates; spider containing fingers, threaded on Hub

No. 5, making Clutch self-contained.

No. 6—Hub which is keyed to shaft.

No. 6—Shows the wedge shape of the plates that give National Clutches their enormous pulling power; rugged, compact, simple; no springs or any weak part in this clutch.

A number of Machine Tool builders have adopted this as their Standard—WHY NOT YOU?

National Clutch Co., 1859 Fulton St., Chicago, Ill.

Expansion Clutch Coupling



Conway & Company

2509 Beekman St., Cincinnati, Ohio

Manufacturers of Friction Clutches since 1895

Sweetland Lathe Chucks



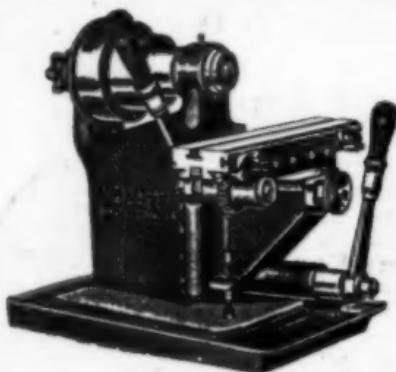
Sweetland Lathe Chuck Features

There need be no fear of spoiling the work at the last minute. Not only do Sweetland Chucks take a quick grip on work of widely varying shapes, but they stay gripped.

And their long-continued efficiency is another strong Sweetland feature. One user, who had bought a second-hand, rust-covered Sweetland, says: "This is the only chuck I have ever seen that is free from side wobbling." We have records of a number of Sweetlands that are doing accurate, efficient work after 20 to 30 years of service.

The Hoggson & Pettis Mfg. Co.
Hartford, Conn., U. S. A.

Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

Send for descriptive circular

The Carter & Hakes Machine Co.
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.
WESTERN AGENTS—Marshall & Huschart Machinery Co.,
Chicago, St. Louis, Indianapolis.



Burke's No. 3 Bench Millers

Are Seasoned Tools

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;
traverse feed, 3½ in.; vertical
motion of knee, 8½ in.; table
surface, 3½x12 inch.

Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

"Whitney" Hand Miller

THOUSANDS IN USE



The Sliding Head

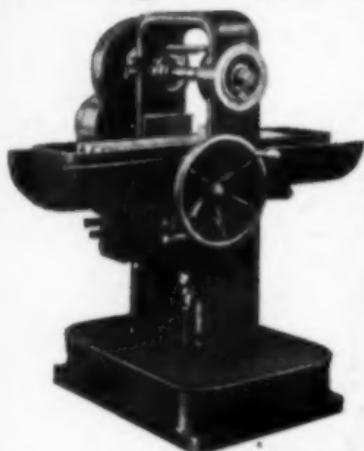
gives advantages in accurate and rapid production
which no other type of Hand Miller can equal.

Prompt Deliveries

The Whitney Mfg. Co., - Hartford, Conn.

Chains—Keys and Cutters—Hand Milling Machines

Milling Steel Parts for Guns?



**Great Economy
Is Yours With**

the Briggs High Duty Machine for form and gang milling of steel parts for GUNS, automobiles, etc.

It is built especially for rapid and heavy work, and takes wide cuts in hard steel to the full power of a double belt without any chatter. It is superior both in convenience and capacity.

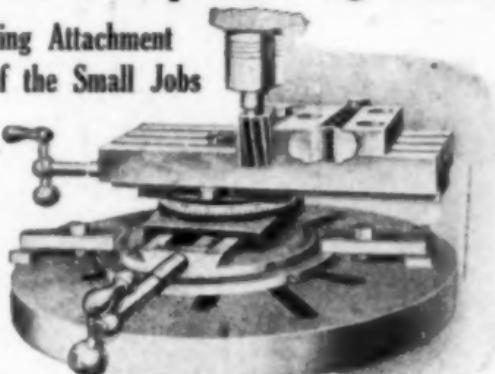
Glad to tell you more about this cost reducer

GOOLEY & EDLUND, Inc., Cortland, N. Y.

Relieves and Replaces Big Millers

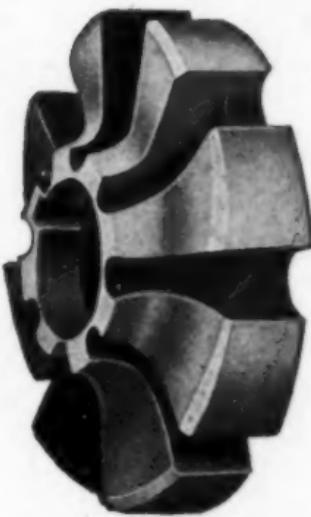
**Davis Milling Attachment
Does 90% of the Small Jobs**

**Converts
any Drill
Press from
14 to 42-in.
swing in
2 Minutes**



Relieves your large millers, comes in handy spotting castings, milling ends of bosses, etc., and does 90% of the lighter jobs as well as a \$1,000 machine; cuts keyseats perfectly. We also have low factory prices on our cylinder reamer for reborning the Ford car, and on our reliable air compressor. Write for details.

**Hinckley Machine Works, HINCKLEY,
ILL.**



Being Able to Produce

Quickly and accurately, are some of the many reasons for the steadily increased demands for our

SPECIAL CUTTERS

SEND US BLUE PRINTS OR TEMPLETS
FOR QUOTATIONS

**The Cleveland Milling
Machine Company**

18511 Euclid Ave. Cleveland, O.

Quickwork Rotary Shears

Never Fail to Decrease the Labor Costs from 25% to 50%;

Never Fail to Increase the Output;

Never Fail to Do Better Work.

Cuts straight lines as well as any other Rotary Shear, and in addition will cut the most irregular, serpentine and zig-zagged lines across the sheet with one passage of the metal; or it will cut any shape or opening in a sheet without cutting in from the side.

Has three speeds; both cutters driven and the metal is self-feeding, and comes through with smooth straight edges. Send for new catalog.



Twelve Sizes

Cutting any thing from the thinnest sheets to $\frac{3}{16}$ " Steel Plates.

THE QUICKWORK COMPANY

Successor to H. Collier Smith, Detroit.

Detroit Office and Salesroom, 807-815 Scotten Avenue, Detroit, Mich.

Main Factory and Office
St. Marys, Ohio.

A Universal Metal Cutter

The New "GRAY"—Capacity up to 3-16" Plates



Within its capacity it does anything that any shear will do.

It does lots of work for which the shear is useless.

It should have a place in your shop because it is such a universal cutting tool; because it cuts all intricate patterns; because it reduces costs 90%; because it leaves the metal flat, with smooth, clean edges—nothing whatever like the rotary shear.

You would want it if you knew it. May we not post you?

W. J. SAVAGE CO., Knoxville, Tenn.

He's Working— Not Worrying

because of dangerous unguarded machinery



You can protect your workmen by using guards for all of your machines.

"Make 'em yourself"

with "Econo" expanded metal as outlined in our free book, "Econo Expanded Metal Belt & Machine Guards."

North Western Expanded Metal Co.
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Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
" No. 0 32 " "
" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
" No. 9 Tiling Table
" No. 10 "

Boring attachment if wanted.



Jointers

6 in., 5 and 6 ft. tables and guard.
12, 16, 20, 24 and 30 in., 7 ft. tables
and guard.

Trimmers, Lathes, Core Box Tools, etc.

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Sheaves and Fly Wheels



PERMANENT: They are permanent, as they are not affected by age, heat, cold or moisture.

RELIABLE: They do not loosen up under vibration or intermittent loading.

RUN TRUE: They run true, steady the line shaft, and have a very small load due to windage.

REDFACE PULLEYS are especially adapted to use on motors, fans, pumps and special machinery.

Catalog mailed promptly upon request

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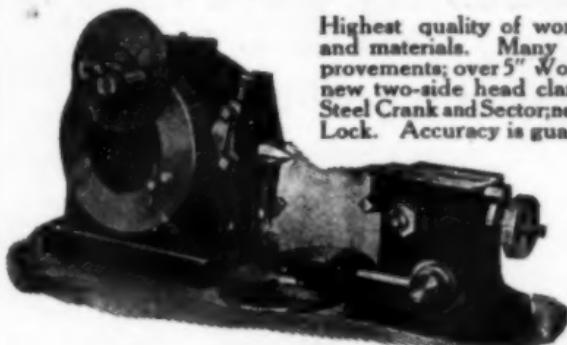
Cast Iron Pulleys, Sheaves and Fly Wheels

328 N. Sangamon St.,

Chicago, Ill.

Superior to Most—Second to None

Dickow's 10" Univ. Index Centers are Accurate



Highest quality of workmanship and materials. Many new improvements; over 5" Worm Wheel; new two-side head clamps; new Steel Crank and Sector; new Spindle Lock. Accuracy is guaranteed.

Get the Original—Beware of Imitators

Sold by all dealers. Write today for particulars.

Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.

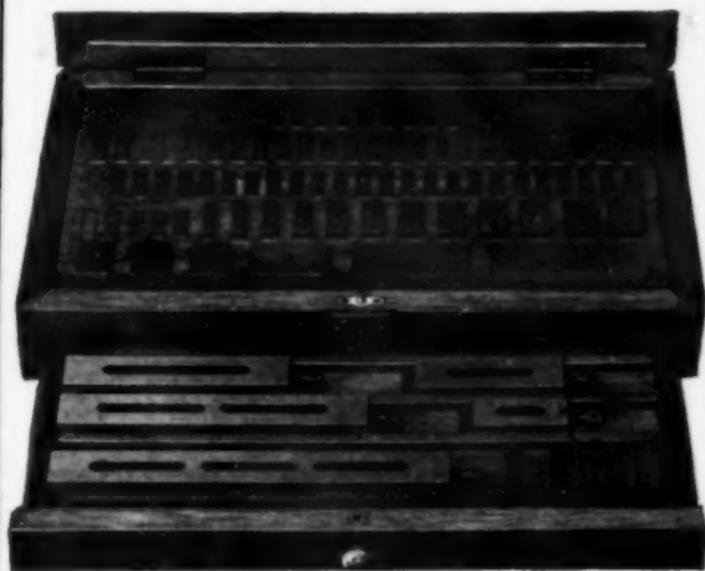


**Giant
Universal
Joints
For
Heavy
Service**

Made in sizes $\frac{1}{2}$, $\frac{3}{4}$, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $2\frac{1}{8}$ and $2\frac{1}{2}$ in.

The "Giants" run efficiently up to 45 degrees angle, without play or looseness in any direction. The wearing parts are of hardened steel and large diameters. They are self-oiling and entirely enclosed against dirt. We also make the Vanderbeek Universal Ball Joints from $\frac{3}{4}$ " to 2", to run up to 70 degrees angle, and solicit your inquiry for dependable angular drives for both light and heavy service.

Ainslie Machine & Tool Works
Successors to Vanderbeek Tool Works
HARTFORD, CONN.



"WISMACH" **American Gage Standards**

Accuracy .00001" Guaranteed

They have forged their way to the front.

The best American manufacturers are using "WISMACH" Standards for work of extreme accuracy, insuring interchangeability of parts.

Made in English or Metric measurements.

Cut shows set "D," 81 blocks, 3 pairs of jaws, 5 holders, giving measurements in .0001".

Quick deliveries. Write at once for full information.

O. Zernickow

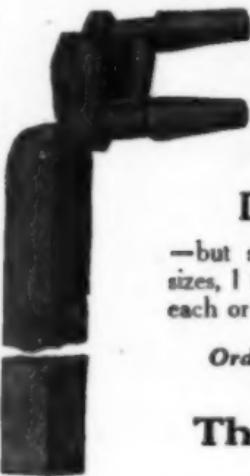
SELLING AGENT

15 Park Row,

New York, N. Y.

Why Risk Your Good Men?

Protect Them With "Safety First" Belt Sticks



Putting belts on moving pulleys with "any old thing" is always a risky business. Permitting a workman to be mutilated is very bad business—to say the least. Doctor bills, impaired production, and often damage suits follow.

Don't Take a Chance

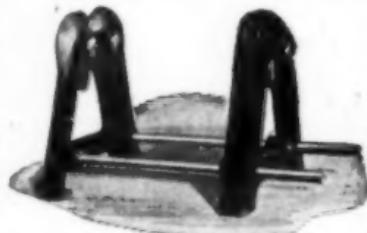
—but send for "S. F." Belt Sticks. Two sizes, 1 to 4" and 4 to 6", at one price, \$1.25 each or \$12 a dozen.

*Order NOW and PREVENT injury
to that good man*

The Ready Tool Co.
Bridgeport, Conn.

Improved Balancing Ways

The Anderson are Always Ready



They have no equal for the quick and accurate balancing of cutter heads, crank shafts, aeroplane motors, propellers, polishing wheels, cones, pulleys, gim brushes, armatures, rotors for turbines, etc., etc.

and are extremely sensitive. They are made of chilled iron ground true on face, and perfectly balanced. The several sizes come up to the most exacting demands of the up-to-date machine shop. No adjusting required.

Write for specifications and prices

Anderson Bros. Mfg. Co.
115 Morgan St., Rockford, Ill.

Adjusts Quickly To Any Angle

Without Disturbing Work Bolted To It

A rigid, accurate tool for use in connection with the lathe, planer, milling machine, shaper, drill press, grinder or die sinking machine.



Universal Angle Plate—Made in Four Sizes

Here is a device for holding work and adjusting it to every desired angle, which is so scientific in its construction, so accurate in its adjustments, and so inexpensive for its great utility, that it is being included in the equipment of many an up-to-date tool room as a mere matter of course.

Made in four sizes—4x6, 6x8, 8x10 and 12x18. The 12x18 has worm adjustment; the 8x10 is furnished either with or without that adjustment. They all swivel through a complete circle and tilt to 90 degrees.

Write for the description and moderate price

Boston Scale & Machine Co.
100 Ruggles St., Roxbury, Mass.



Style "C"



Style "B"



Style "T"



The Hinge



Style "G"



Style "O"



Style "Y"



Style "L"



Style "H"

GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO.
555-557 W. MONROE ST., CHICAGO



The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio

Tucker's Safety First



Style G, Closed



Style G, Open



Style C



Style F, Drive



Style B



Style D, Open



Style D, Closed



Style A

Oil Hole Covers

Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing, and locate the parts to be lubricated.

*Send for Catalogue
Oil Hole Covers No. 5*

Want More Orders?

They are to be had for special contract work in machining, stamping, forging, casting, welding or any department of machine manufacturing. The problem is merely to bring the capacity and the demand for it together. If you have the idle capacity, and want work for it, the "Contract Work Wanted" department of the Tool List will help you to get in touch with machine-making plants everywhere in the United States. Its circulation among American metal working plants is country-wide. There is no other available means by which you can reach so many.

Don't let your equipment stand idle. That costs money—a lot more than it will cost you to find work for it. Write me for further information, and for a copy suggestion, which I shall be glad to make without cost or obligation.

A. H. Hitchcock, Publisher

Hitchcock's Machine Tool List
1220-1235 Caxton Building, Chicago, Ill.

Contract Work Wanted

This department is exclusively for the use of those desiring to secure contracts for anything in the line of foundry or machine work, including press work, dies, jigs, fixtures, gears, die castings, drop forgings, screw machine products, springs, bolts, nuts, rivets, etc. Advertisements are to be set with side headings as shown, and with such display as may be appropriate to the copy used. Rates: one-eighth page, per month, \$4.

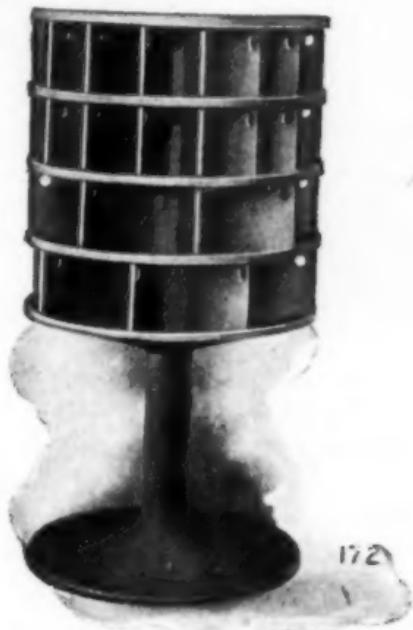
Gauges, Jigs Dies, Tools and Light Machinery	The Model Tool & Gauge Co. 185 John St., Bridgeport, Conn. Quick deliveries on gauges, jigs, dies and tools. Light machinery built on contract. Send us your specifications. We shall be pleased to quote.
Dies, Tool General Machine Work	Chicago Die & Machine Works 415 N. Carpenter St., Chicago, Ill. We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876.
Patterns	W. J. Nobach Pattern Works 411-13 S. Clinton St., Chicago Our specialty is "Patterns" of wood, brass, aluminum match plate and for moulding machines of all description. You no doubt know the present condition of business which renders it almost impossible to get first class Pattern Makers, but we are abreast with the situation here.
Is Your Equipment All Busy?	Why not get in some special work to fill in the idle time? Let the manufacturing public know what you can do, and what machinery you have to do it with. Space in this department costs but little, and covers the metal manufacturing field as with a blanket. Why not try it?
Dies Tools Special Machinery	Robbins, Gamwell & Co. Pittsfield, Mass. Accuracy and efficiency in gages, dies and special machinery, is our specialty.
Machine Work and Screw Machine Products	Joseph W. Hager 92 Frelinghuysen Ave., Newark N. J. Let me estimate on your requirements. Send blue- prints and specifications.
Gray and Malleable Iron Castings Die Castings	Lough Brothers 90 West Street, New York City Gray iron castings, one ounce to twenty tons. Malleable iron castings. Die castings in aluminum, tin and zinc alloys.

CONTRACT WORK WANTED

<p>Dies, Tools Automatic Dies and Sheet Metal Products</p>	<p>Nelson Tool Company, Inc. No. 781 East 142nd Street, New York City</p> <p>We are well equipped to manufacture sheet metal articles made in automatic dies and machines.</p>
<p>Dies, Gauges Jigs and Fixtures</p>	<p>A. N. Van Deman 95 William St., New York City</p> <p>Model and experimental work; special machinery built to order; contract manufacturing. Finished parts, of intricate shapes, accurately produced from electrolytic copper</p>
<p>Screw Machine Products</p>	<p>Litquick Gas Lamp Co. Defiance, Ohio</p> <p>We are in position to take on additional contracts for screw machine work, which our location, facilities and labor supply enable us to handle promptly and at attractive figures. Send your blue-prints.</p>
<p>Drop Forgings (All Kinds)</p>	<p>Bonney Vise & Tool Works, Inc. Allentown, Pa.</p> <p>Quick and Accurate Drop Forging and Finishing</p> <p>Good tools, good men, and good management insure precision and promptness. Investigate; when you know our facilities and our record you'll want our service.</p>
<p>Brass Die Castings Cored Brass and Gray Iron Castings</p>	<p>The Fulton Company Knoxville, Tenn.</p> <p>We are furnishing the U. S. Government and are prepared to make in quantities brass (not white metal) die castings of high tensility; also cored brass and gray iron castings (matched board) up to six to eight lbs.</p>
<p>Pressed and Stamped Steel Parts</p>	<p>Geuder, Paeschke & Frey Co. 1325-1700 St. Paul Av., Milwaukee, Wis.</p> <p>It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81." Send samples or blue prints for est.</p>
<p>Dies, Tools and Machine Work</p>	<p>Smith Specialty Mfg. Co. 136 Second St., Milwaukee, Wis.</p> <p>Wanted, machine work for lathe, shaper and miller, also drill press work.</p>
<p>Want Orders for Die Casting?</p>	<p>This is the place where you can offer your facilities to users of metal products everywhere in the United States. Many readers of the Tool List are in the market for die castings, and they would welcome information as to what you can do for them.</p>

The Assembler's Friend

It enables him to keep the necessary bolts, nuts, screws and other small parts where he can lay his hands on just what he wants with the least possible delay—a great convenience and a big time saver.



"New Britain" Revolving Screw Rack

It has variable size compartments. Partitions may be rearranged, and shelves may be added or taken out. As regularly furnished it has 48 compartments, capable of carrying 500 to 600 lbs. The upper compartments hold about two quarts each, and the lower ones twice as much. The revolving top is supported by a ball step bearing, and turns at a touch.

Write for descriptive Bulletin No. 1210

The New Britain Machine Company

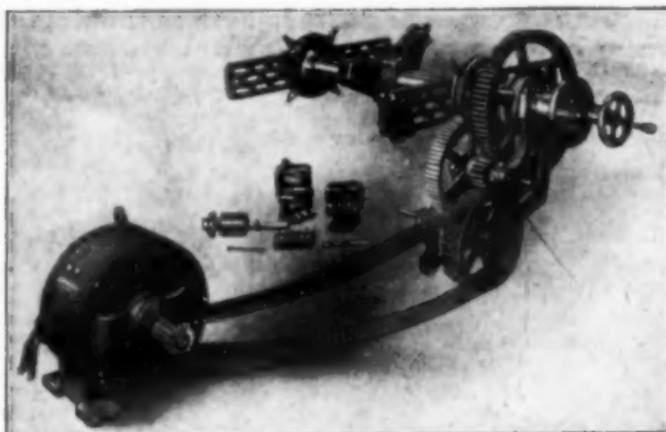
**"Shop Furniture
Originators"**



**New Britain,
Conn. U.S.A.**

A Boring Bar to Fit Your Work

Underwood's Is Motor Driven



THE BORING BAR shown above is driven with a motor and silent chain. It bores all kinds of engines, pumps, air compressors, steam hammers, valve seats, etc., with machine shop accuracy.

A highly economical tool because readily operated in a space which allows the taking of the piston out of the cylinder, and repairs in many cases are effected in the time ordinarily needed to disconnect the parts. Made in any special size to suit your needs. Our line of Portable Tools and labor saving devices now includes:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; armature and axle bearing borers; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners; reflex water glass grinders; rail saws; motors, etc.

Our Catalog teaches economy. Send for it today.

H. B. Underwood & Company
1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you require is not listed, use the blank enclosed to make known your wants to the publisher.

WANTED BY

South Bend Machine Tool Co., - - - - **South Bend, Ind.**

BORING MACHINE.

Second-hand boring machine wanted, one with 3" bar to bore a 5" hole in the center of 25" circle. Bar feed need not exceed 8 inches.

FOR SALE BY

Victor Ring Traveler Co., **23 Sabin St., Providence, R. I.**

TEMPERING FURNACES AND BLOWER.

Air tempering furnaces, No. 1 American Gas Furnace Co., (2). Blower, No. 6 Boland pressure blower, together with piping, etc., to use with above furnaces. Lead tempering furnace, Brown & Sharpe.

FOR SALE BY

Machineshop Equipment Corp'n, **170 Oliver St., Boston, Mass.**

Automatic, 3½" Cleveland, 6-hole turret. Grinders, 12" x 42" Landis plain, (2). Flanging press, platen 10' x 2', with hydraulic pump, for 4,000 lbs. pressure. Lathes, 42" x 25', new, (3). Squaring shears, 8" capacity, blades 100" long. Also Drills, Shapers, Lathes, Milling Machines, Planers, Grinders, etc.

FOR SALE BY

J. L. Lucas & Son, **No. 8 Fox St., Bridgeport, Conn.**

LATHE.

30" x 22' New Haven lathe, 18' between centers, 20" over carriage, screw cutting, compound rest, chuck, two steady rests, clutch countershaft; immediate delivery; price, \$500.

GEAR CUTTERS.

Two 22" Gould & Eberhardt spur and bevel gear cutters, in good order; price, each, \$875.

FOR SALE BY

The Barnard Machinery Co., - - - - **Enterprise, Kansas.**

SPLIT FRICTION CLUTCH PULLEYS—GOOD AS NEW

Two split friction clutch pulleys, 72" diameter by 14½" face, heavy rims with 40" Hill four-arm split mechanisms. Flanged iron sleeves bored 4-7/16". Double geared operators. Price, each, \$200. One split friction clutch pulley, 72" diameter by 14½" face, heavy rim with 36" Hill four-arm split mechanism. Flanged brass sleeve 18" long, bored 4-7/16". Screw geared operator on cast-iron pedestal. Price..... \$175.

SECOND-HAND MACHINERY

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse, 216-218 Penn Ave., Pittsburgh, Pa.

NEW EQUIPMENT.

LATHES.

25" x 14' Sidney, q. c., d. b. g., cone dr.
19" x 12' Sidney, q. c., d. b. g., cone dr.
19" x 10' Sidney, q. c., d. b. g., cone dr.
17" x 10' Sidney, q. c., d. b. g., cone dr.
17" x 8' Sidney, q. c., d. b. g., cone dr.
15" x 8' Sidney, q. c., s. b. g., cone dr.
15" x 6' Sidney, q. c., s. b. g., cone dr.

18" x 10' South Bend, s. b. g., cone dr.
16" x 8' South Bend, s. b. g., cone dr.
15" x 7' South Bend, s. b. g., cone dr.
15" x 6' South Bend, s. b. g., cone dr.
13" x 6' South Bend, s. b. g., cone dr.
10" x 4' Climax, s. b. g. cone dr., (3).

MILLING MACHINES.

No. 1 1/2 Am., gd., pl., table 10x46", (2).
No. 1 U. S. pl., hand, table 68" x 23".

DRILL PRESSES.

20" Silver Fig. 862, geared p. f., (3).
20" Silver Fig. 860, power feed, (3).
20" Silver Fig. 858, wh. and l. fd., (6).

14" Excelsior, sens., 2 tables, (6).
10" Burke sen. bench, cap. 5/16", (6).
9" W. Chief, bench, cap. 1/2", (10).

POWER METAL SAWS.

Peerless, cap. 13" x 16" belted.
Peerless, cap. 9" x 9" belted.
Peerless, cap. 9" x 9" motor mntgs.
Peerless, cap. 6" x 6" motor mntgs.

Peerless, cap. 6" x 6" belted.
Economy, cap. 8" x 8" belted, No. 4.
Economy, cap. 6" x 6" belted, No. 3.
Economy, cap. 6" x 6" belted, No. 2.

SHAPERS.

24" & 18" Hollingworth, crank, grd.
GRINDERS AND BUFFERS.

24" 18" & 16" Barker, crank, grd.

18" x 2" Webster & Perks wet tool.
14" x 4" W. & P. gr. and pol., No. 1 1/2 T.
No. 6 W. & P. pol. & bi'ng la's., (3).

No. 4 W. & P. pol. and bf'ng lathe.
12" Patch, dbl. end, with col., (3).
10" Patch, dbl. end, with col., (3).

USED EQUIPMENT.

DRILLING MACHINES.

4" Universal radial, old style.
3 1/2" Bickford plain radial, cone drive.
7" Prentice, univ.tbl., tap'g att. m. d.
24" Fosdick plain radial, cone drive.

24" Prentice, grd., sliding head.
14" Champion post drill, hand feed.
20" sliding head, old style, poor condition.

ELECTRIC TRAVELING CRANES.

50 ton Niles, 75' span 220 v., d.c., 4 motor.
30 ton Niles, 45' span, 220 v., d.c., 3 motor.
25 ton Case, 28' 1" span, 220 v., d.c., 3 motor.
20 ton Northern, 60' span, 220 v., d.c., 3 motor.
20 ton Shaw, 55' 10" span, 110/220 v., d.c., 3 motor.
10 ton Whiting, 38' 3" span, 110/220 v., d.c., 3 motor.
20 ton Niles, 75' span, 800 v., d.c., 3 motor.
2 ton hand, 22' span, one or two trolleys (5).

GRINDERS.

No. 5 Diamond wet tool, 36" wheel, single stand.
No. 10 Brown & Sharpe plain, table 6" x 20".
Yankee drill grinder, floor style.
Double end bench grinder, 6" wheels.
Grindstone, wheel 34" x 5" with reservoir.

JACKS—HYDRAULIC.

15, 20, 30, 40 & 50 ton Dudgeon.

LATHES.

26/56" x 26' McCabe two-spindle, motor driven.
24" x 15' New Haven, h. s., compound rest.
24" x 15' Finehd, solid spindle, plain rest.
48" Niles car wheel turning, journal att. m. d.
12" x 5' speed lathe, countershaft.

24" Gould & Eberhardt, crank, cone driven.
24" Cincinnati, crank, motor 3-p., 60 cy., 220 v.
28" Cincinnati, triple geared, belted.

MILLING MACHINES, PLANERS AND SHAPERS.

No. 24 Osterlein, universal, table 9" x 36", index head.
No. 4 Garvin, plain, table 6" x 30".
20" x 30" x 14" American, sgl. bd., m.d.
60" Cleveland rotary, motor driven.

24" Cincinnati, crank, motor 3-p., 60 cy., 220 v.
28" Cincinnati, triple geared, belted.

SECOND-HAND MACHINERY

McCoy-Brandt Machinery Company—Continued.

USED EQUIPMENT.

MOTORS AND GENERATORS.

30 h. p. Fairbanks, 3 phase, 60 cycle, 220 volt, 900 rev.
30 h. p. Burke, 3 phase, 60 cycle, 220 volt, 1,800 rev.
20 h. p. Burke, 3 phase, 60 cycle, 220 volt, 900 rev.
20 h. p. Fairbanks, 3 phase, 60 cycle, 220 volt, 900 rev.
10 h. p. General Electric, 3 phase, 60 cycle, 220 volt, 900 rev.
3 h. p. Wagner, 3 phase, 60 cycle, 220 volt, 1,700 rev.
10 h. p. Fairbanks, 2 phase, 60 cycle, 440 volt, 1,200 rev.
1 h. p. General Electric, 2 phase, 60 cycle, 220 volt, 1,800 rev.
1 h. p. Fairbanks, 2 phase, 60 cycle, 220 volt, 1,800 rev.
10 h. p. Akron, 220 volt, d. c., 700 rev., series wound.
4½ h. p. Shaw, 220 volt, d. c., 575 rev., series wound.
7½ h. p. Triumph, 220 volt, d. c., auto. starter, elev. duty.
15 h. p. General Electric, 500 volt, d. c., 1,200 rev., type CE.
10 h. p. Westinghouse, 500 volt, d. c., 1,250 rev., type M.
1 h. p. Westinghouse, 110 volt, d. c., 1,800 rev.
h. p. Crocker-Wheeler, 110 volt, d. c., 1,600 rev.
h. p. Emerson, 110 volt, d. c., 1,800 rev.
h. p. General Electric, 110 volt, d. c., 800 rev.
h. p. Diehl, 110 volt, d. c., 1,800 rev.
75 h. p. Compensator, General Electric, 3 phase, 60 cycle, 220 volt.
150 k. w. Westinghouse, 250 volt, d. c. to Russell engine, (2).
17 k. w. Westinghouse, 125 volt, d. c., 1,125 rev., type S.
12½ k. w. General Electric, 125 volt, d. c., 1,500 rev.
90 k. v. a. Lincoln, 3 phase, 60 cycle, 220 volt, 1,200 rev.

PIPE MACHINES.

8" Eaton, Cole & Burnham, steam or belt drive.
2" Bignal & Keeler, countershaft and dies.

PRESSES AND BRAKES.

No. 225 Adriance, solid back, 2" stroke, 7,000 lbs., geared.
No. P-5 Ferracut, solid back, 1½" stroke, 8,600 lbs., plain.
No. 4 Stiles, solid back, 1½" stroke, 5,000 lbs., plain.
No. 4½ Niagara, o. b. i., 2½" stroke, 2,000 lbs.
No. 19 Avery, equal No. 19 Bliss, o. b. i., 2" stroke, (2).
No. 11 Perkins, straight sided, trimming, 4" stroke, bed 24x30", 16,000 lbs., side shear, plain.
No. 65 Special Toledo (cam drg.), 7" and 4" strokes, geared.
13" 6" Garrison brake or press, cap. 4", 118,000 lbs.
8" Robinson hand brake, cap. 16 gauge.

PUNCHES, SHEARS AND ROLLS.

48" tht. sgl., cap. 3x1½", Providence.
36" tht. sgl., cap. 1½x1½", Kling.
27" tht. sgl., cap. 3x1½", Queen City.
9" tht. sgl., cap. 1x1½", Champion, (3).
15" tht. single, cap. 1½x1½", New Doty (hand).
18" tht. double, cap. 1x1½", No. 3-A Royersford.
15" tht. double, cap. 1½x1", No. 13 Williams-White.
15" tht. dbl., cap. 3x1½", Fischer.
12" tht. dbl., cap. 3x1½", Queen City.
24" tht. triple, comb. Schatz, m. dr.
12" blade dbl. bar shear, cap. 2½" square Cruc.
18" blade univ. plate shear, cap. 4", Cleveland.
26" blade universal plate shear, cap. 3/16", Lewis.
Guillotine shear, cap. 2½" sq., No. 6 Perkins.
Guillotine shear, cap. 1½" rounds, No. 0 Hilles & Jones, (2).
Guillotine shear, cap. 3x1½", Fischer.
Rapid 3-blade shear, blades 8" long.
Squaring shear, 36" Ohl, cap. 16 gauge.
Squaring shear, 120" Ohl, cap. 3-16".
Circle shear, No. 20 P. S. & W., cap. 20 gauge.
Gang punch, 56" between housings, bed 70x11", No. 3 L. & A.
Rolls, 6' Hilles & Jones, cap. 4" full width.

SAWS — Metal.

27" blade Q. & C. No. 1-A, universal for motor drive.
26" blade Newton, belt driven.
12" blade Goodell & Pratt hack saw.
No. 2 Thompson metal jig saw.

SECOND-HAND MACHINERY

FOR SALE BY

Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.

LATHES.

13" x 6' South Bend, c. r., h. s., new.
 15" x 8' South Bend, c. r., h. s., new.
 16" x 8' South Bend, c. r., h. s., new.
 18" x 10' South Bend, c. r., h. s., new.
 14" x 6' Mulliner, tool room, q. c. g., taper att., draw-in att., new.
 16" x 8' Walcott, q. c. g., d. b. g., c. r., h. s., new.
 18" x 8' Walcott, q. c. g., d. b. g., c. r., h. s., new.
 20" x 10' Walcott, q. c. g., d. b. g., c. r., h. s., new.
 14" Pierce, plain head, turret, new.
 14" Warner & Swasey, turret, used.

DRILLING

No. 1 Burke, bench, with chucks, new.
 No. 28 Western Chief, bench, new.
 14" Excelsior, 2 tables, new.
 No. 27 Canedy-Otto, new.
 20" Silver, s. b., w. & l., new.
 20" Silver, s. b., b. g., p. f., new.

SHAPERS.

16", 20" & 24" Milwaukee, b. g., latest improved, new.

SCREW MACHINES.

No. 4 Smurr & Kamen, geared friction head, p. f. to turret, new.
 No. 2 Garvin, plain head, w. f., collets, used.

MILLING MACHINES.

No. 1 U. S. hand, vise & arbor, new.

PRESSES.

No. 1 Bauroth, o. b. i., new.
 No. 3 Loshbough-J., o. b. i., new.
 No. 4 Loshbough-J., o. b. i., new.

SAWS.

Nos. 1 & 2 Marvel, draw cut, new.
 No. 7 Atkins, Kwick-Kut, used.

6x8" Peerless, high speed, new.

8' Dreis & Krump, steel, new.
 6' Robinson, cornice, used.

9x9" Peerless, high speed, new.

BRAKES.

8' Robinson, cornice, used.

SHEARS.

No. 3 Robinson, hand, splitting.
 30" P. S. & W. Acme, foot, square.

GRINDERS.

Auto. Mch. Co., cutter & reamer.

Nos. 1, 2 & 3 Western, d. e., new.
 Nos. 1, 2 & 3 St. Louis, d. e., new.
 No. 20 Safety E. W. Co., elec. (4).
 U. S., electric, 110 v., d. e., bench.

Wells, cutter & reamer.

Washburn, drill.

Easley, cylinder.

COMPRESSORS.

10x10" Star vertical, with engine, double acting, cap. 120 cubic feet, used.

MISCELLANEOUS.

Buffing lathe, No. 47 Safety E. W. Co.
 Bulldozer, 5" stroke.
 Chain hoists, 1½ & 2 tons, (3).
 Enameling ovens, Roberts, gas, (2).
 Hammer, 60 lb. Knowlton, helve.
 Hammer, 600 lb. Morgan, steam.

Pipe machine, 2' Borden, belted.

Pipe & tube cutter, No. 5 Fox.

Press, 20-ton Weaver, hand, new.

Punch & shear, No. 1-B New Doty.

Rivet spinner, Grant, bench.

Large stock of tinner's tools.

CHUCKS.

12" 4-jaw Simplex, ind., new.

12" 3-jaw Manufacturers Equipment Co. air chucks, used.

16" 3-jaw independent, used.

SECOND-HAND MACHINERY

FOR SALE BY

J. J. McCabe,

149 Broadway, New York

BENDING ROLLS

12' set of Wickes Bros. bending rolls, vertical type, pyramidal form; capacity for bending 1 $\frac{1}{2}$ " plates; outside roll 20" diam.; inside rolls 16" diam.; top housing hinged, so that outside roll can be lowered down for removing plates bent to a full circle.; engine driven, with engines complete.; all set up where used.

PUNCH AND SHEAR.

50" throat, absolutely new, latest improved construction, single end, interchangeable; punching capacity, 2" hole thru 1" plate; shearing attachments extra if desired; weight 37,500 lbs.

OTHER BOILER SHOP TOOLS.

Niles 21' plate planer. Air riveter, 12' gap, 1 $\frac{1}{2}$ " rivets. Air riveter, small gap, for 1 $\frac{1}{2}$ " rivets. Air crane, 20 tons capacity. Boilermakers' punch, 24" gap. Cable crane, 10 tons capacity.

PLANERS.

24" x 24" x 6' Gray.
26" x 26" x 8' Pond.
26" x 26" x 8' Gray.
30" x 30" x 6' Pond.
36" x 36" x 12' Niles.

LATHES.

48" swing, 20' bed, Putnam.
36" swing, 20' bed, Putnam.
36" swing, 16' bed, Putnam.
Double spindle—26-48" x 14', McCabe.
26" swing, 16' bed, Bridgeford, double back gears.
24" swing, 12' bed, Putnam.
24" swing, 12' bed, Lodge & Shipley, geared head.
20" swing, 14' bed, Hamilton, quick change.
18" swing, 10' bed, Porter.
16" swing, 6' bed, LeBlond.

MULTIPLE DRILLS.

6-spindle Baush, capacity 1" holes.
4-spindle, heavy, Niles Tool Works.

COMBINATION SLOTTER AND KEYSEATER.

30" stroke, Baker Bros.

CENTERING AND CUTTING-OFF MACHINE.

10", Bement-Miles.

PLANER TYPE MILLING MACHINE.

24" wide, 12' table, Bement-Miles.

GEAR SHAPER.

36" Fellows, with cutters.

HORIZONTAL CYLINDER BORING MACHINE.

No. 2 Barrett, with 5" boring-bar, automatic feeds in either direction, 48"—having capacity for boring and facing both ends of a cylinder at the same time. Machine is complete with auxiliary cross table and lot of tools, in absolutely A-1 condition, like new.

UPRIGHT BORING MILL.

36" swing, turret head, Brown & Sharpe.

RADIAL DRILLS.

3' arm, Dreses, with tapping attachment.

2 $\frac{1}{2}$ ' arm, Dreses, with tapping attachment.

FLAT TURRET LATHES.

3x36" sliding head, Jones & Lamson.

2x24" bar equipment, Jones & Lamson.

TURRET LATHES.

Full automatic, 20" Potter & Johnston.

Rigid type, 28" swing, Pond.

TURRET LATHE AND SCREW MACHINE.

1 $\frac{1}{2}$ " wire feed, Bardons & Oliver.

1 $\frac{1}{2}$ " wire feed, Garvin.

SECOND-HAND MACHINERY

FOR SALE BY

Western Mch. Co., —C. H. Norton— 112 W. 3rd St., Cincinnati, O.

LATHES.

12" x 6' Hendey, taper, q. c., new.	30" x 16' Niles.
12" Shepard lathes, new, (7).	32" x 12' N. Y. triple gears.
14" x 6' Blaisdell.	36" x 14' N. Y. triple gears.
16" x 6' Le Blond, q. c., t. c., chuck.	51" x 16' American T. Foundry screw cutting.
16" x 6' Le Blond standard.	3" Niles turret screw mach., heavy, \$450.
16" x 8' Pratt & Whitney, (2).	24" Gisholt turret lathe.
20" x 10' Flather.	
24" x 12' Steptoe.	

MISCELLANEOUS.

Broaching press, 60-ton Watson-Stillman.
Gear cutter, No. 3 Browne & Sharpe 30", spur.
Shear, Lennox rotary bevel.
Upright drills, radials, planers, shapers, milling machines, etc.

FOR SALE BY

A. D. White Machinery Co., — 108-114 N. Jefferson St., Chicago.

PUNCH PRESSES AND PUNCHES AND SHEARS.

No. 29 Swaine, o. b. i.	No. 380 Toledo slitting shear, 16 ga.
No. 2 Walsh, o. b. i.	Rock River s. e. punch, 12" thr., cap. 3".
No. 45 Crosby, open back.	No. 6, Long & Allstatter s. e. punch, 4" throat.
No. 204 Toledo overhanging press.	
No. 29 Bliss, gang, dbl. action.	
19" throat geared punch.	

DRILL PRESSES.

28" Bickford, sliding head.	3-spdl. American.
34" Barnes, sliding head.	4-spdl. Dwight slate.
32" Bickford, sliding head.	8-spdl. Valley City, No. 1 taper.
1-spdl. Henry & Wright high speed.	12 spdl. Baush, No. 2 taper.

SCREW MACHINES.

7-16" Cleveland, friction feed.	1" Cleveland.
11" Cleveland, friction feed.	1 1/2" LaVigne.
14" Cleveland, friction feed.	1 1/2" Cleveland, semi-automatic.
14" Cleveland, jigger feed.	3" P. & W. automatic.
Hartford, (3).	

ENGINE LATHES.

10" x 54" Davis.	28" x 10' Fifield.
11" x 5' South Bend.	26" x 25' Blaisdell.
14" x 6' Monarch.	30" x 14' Blaisdell.
16" x 12' Beaman & Smith.	32" x 14' Pond.
24" x 10' Putnam.	

GRINDING MACHINES.

18" Ransom, disc.	Springfield, dbl. wheel, water.
Yankee Style "B", drill.	No. 2 Leland & F., water.
14" Norton, floor, (2).	No. 38 Safety Emery Wheel Co., plow grinder.
14" Safety Emery Wheel, floor.	10 x 30" Landis plain.
2" No. 7 Sterling, floor.	
2" Springfield, double wheel, floor.	

MISCELLANEOUS.

Boring mill, 44" Baush, 2 hds.	Miller, slab, 22" Eynon-Ingersoll.
Boring machine, car wheel, No. 55	Miller, No. 2 Becker vertical.
Industrial.	Oil gas generator, No. 3 American.
Bolt cutters, 1 1/2 & 2" Acme, sgl. hd.	Planer, 18" x 4" Whitcomb.
Blower, No. 3 Root.	Planer, 35" x 35" x 12' Niles, 2 heads.
Die filing machine, Simplex.	Riveter, 3" Schuster.
Gas engine, 35 h. p. Columbus.	Rivet spinner, 3/16" Grant.
Hammers, 60 lb. Bradley.	Riveter mch. No. 0 Waterbury s. s.
Hammer, 500-lb. Sandage.	Saw, band, Williamson tilting.
Keyseater, No. 0 Mitts & Merrill.	Saw, cold, Bryant, 18" dia. saw.
Keyseater, 36" Morton portable.	Saw, cold, No. 54 Nutter-Barnes.
Lathes, new, 13" to 24".	

SECOND-HAND MACHINERY

FOR SALE BY

Stocker-Rumely-Wachs Co., 117-121 N. Jefferson St., Chicago
Used Machinery. Immediate Delivery.

DRILLING MACHINES.

20" Sibley.
24" B. F. Barnes, s. h., back geared, power feed.
28" Mechanics, back geared, power feed, new.
36" Mechanics, back geared, power feed, new.
2-spindle W. F. & J. Barnes.
No. 11 Pratt & Whitney, 10 spindles.

GEAR CUTTERS.

24" x7" Gould & Eberhardt, for spur gears.
30" x9" Gould & Eberhardt, for spur and bevel gears.
36" Walcott, for spur gears.
Reynolds gear hobber.

GRINDERS.

No. 1 Norton tool grinder.
No. 1 Cincinnati, universal tool and cutter grinder.
Wells cutter and reamer grinder.
No. 1½ Cincinnati, cutter and tool grinder.
No. 18-C Besly pattern makers disc grinder.

LATHES.

15" x6" Prentice lathe, compound rest.
15" x8" Rockford Tool lathe, compound rest.
16" x8" Bradford, compound rest.
16" x8" Springfield, compound rest.
18" x8" Bradford, compound rest.
18" x8" Lodge & Shipley, patent head, compound rest, taper attachment.
20" x14" Blaisdell, compound rest.
21" x12" New Haven, compound rest.
24"-27" x12" Reed-Prentice, geared head, single pulley drive.
32" x12" Schumacher & Hoye, 28" chuck fitted.
48" x20" Wm. Sellers screw cutting lathe.

PLANERS.

22" x22" x 5' Gray, one head. | 39" x39" x12' New Haven, one head.
36" x36" x14' Sellers, one head.

SCREW MACHINES.

No. 1 Warner & Swasey, plain head.
No. 2 Pratt & Whitney, friction head.
No. 3 Pratt & Whitney, b. g., double fric. head, a. c. and w. f.
No. 3 Bards & Oliver, plain head, a. c. and w. f.
No. 4 Pearson, friction head, a. c. and w. f.

TURRET LATHES.

No. 2 Foster-Kimball, plain head. | 2" x24" Jones & Lamson, cone head.
16" Lodge & Davis, back geared. | 21" Gisholt, motor driven, 5 horse
16" Warner & Swasey, friction head. | power motor.
16" Pratt & Whitney, geared head. | No. 6A Potter & Johnston, auto.

PUNCHES AND PRESSES.

No. 2 Rockford, o. b. i. | No. 4 American Can, o. b. i.
No. 20 Thieme, o. b. i. | No. 4-T American double crank grd.
No. 3 Loshbough-Jordan, o. b. i. | Blake & Johnson, embossing press.
No. 3 Bauroth, o. b. i. | No. 3½ Bliss double geared toggle
No. 4 Rockford, o. b. i. | drawing press.

MISCELLANEOUS.

Air compressor, 6" x6" Curtis.
Boring mill, 30" Gisholt vertical, new.
Cylinder borer, Beaman & Smith, 4-spindle.
Die slotter, Garvin.

SECOND-HAND MACHINERY

FOR SALE BY

The Allis Manufacturing Co., - - - - - Hartford, Conn.

CLUTCHES

Four clutches, in first-class condition, all complete, ready for installation, rated at 40 horse power, bore 2-7/16".

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

8" Hardinge Bros. precision lathe.
16"x8' Perkins, p. r.
16"x8' Lodge & Shipley, comp. rest.
16"x8' Prentice, compound, q. c. g., geared head.
16"x8' Porter, comp. rest.
14"x8' Blaisdell, r. & f. rest. (2)
14"x8' Bradford, comp. rest.

TURRET LATHES.

14" Lodge & Davis, plain head.
No. 1 Warner & S. hol. hex. turret.

DRILLING MACHINES.

26" Prentice Bros. standard, sl. hd.
22" sliding head, w. & l. feed.
5-sp. Detroit, semi-automatic.
5' arm, No. 175 Cincinnati-Bickford wall type plain radial.

SCREW MACHINES.

2" Cleveland full automatic.
No. 90 Brown & Sharpe automatic.
1" Hartford full automatic.
2" Hartford full automatic.
No. 52 four-spindle National Acme.
No. 53 four-spindle National Acme.
No. 54 four-spindle National Acme.

MILLING MACHINES

No. 7 Becker-Brainard, Linc. type.
Pratt & Whitney, Lincoln type, (2)

GRINDERS.

Gisholt tool grinder.
Warner & Swasey cock grinder.
20" Whitney wet grinder.
Type "DE" Hissey-Wolf internal.
Greenfield univ. cutter & reamer, (2).

SHAPERS.

14" Fitchburg, traveling head.
12" Hendey, friction.

HAMMERS.

Coffman, post power dr., 25 lbs., c. s.
100 lb. Cady, belt drop, c. s.

RIVETERS.

4" Shuster, elastic rotary blow.
1/16" Adt, elastic rotary blow.

GEAR CUTTERS.

No. 2 Whiton automatic.
26" No. 4 Brown & Sharpe auto.

KEYSEATERS.

Morton, draw stroke.
Mitts & Merrill, square frame.

MISCELLANEOUS.

Cold saws, 12" Burke, (2).
Cold saw, No. 2 Cochrane-Bly.
Cold saw, Higley.
Filing machine, Simplex.
Saw sharpener, No. 10 Cochrane-Bly automatic.

12"x5' Davis, comp. rest, q. c. g.

16"x6' Lodge & Shipley, patented head, comp. rest.

18"x8' Lodge & Shipley, patented head, comp. rest.

16"x6' Flather, comp. rest, pan bed.

16"x8' Flather, c. r. & t. a.

16"x6' Pratt & Whitney, plain rest.

24" Davis turret boring & chucking lathe, with vert. forming attach.

MACHINES.

4-sp. Garvin, sensitive.

14" Taylor & F. upright sensitive.

No. 15 $\frac{1}{2}$ Foote-Burt, eight spindle, straight line, (2).

20" New Britain multiple spindle automatic.

No. 23 New Britain multiple spindle automatic.

No. 33 New Britain multiple spindle automatic, (2).

No. 2 Warner & S. pl. hd., a. c., p. f.

MACHINES

No. 1 Garvin, plain head.

No. 13 Garvin, plain head.

Wells, bench, cutter and reamer.

No. 1 Diamond face grinder, wheel 14" diameter.

Cincinnati, cutter and reamer, (2).

Rivett radius grinder, h. f.

SHAPERS.

16" Ohio, b. g. crank.

16" Smith & Mills, b. g. crank.

HAMMERS.

400 lb. 4 poppet Etna Machine Co. rope drop hammer.

RIVETERS.

11 $\frac{1}{2}$ " throat Giant rivet spinning machine.

GEAR CUTTERS.

36" No. 3 Brown & Sharpe auto.

26" No. 3 Brown & Sharpe auto.

KEYSEATERS.

No. 2 Mitts & Merrill, with posts and cutters.

Oil separator, 11 qt. Curtis.

Shears, 30" Niagara foot-power squaring.

Shears, 42" No. 142 Stoll, power squaring, new.

Tapper, No. 2 Garvin vertical.

SECOND-HAND MACHINERY

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

Machine Tools.

LATHES.

- 13" x 5' 6" new Carroll-Jamieson.
- 13" x 7' 6" new Carroll-Jamieson.
- 14" x 6' new Carroll-Jamieson, quick change.
- 15" x 6' new Sidney, d. b. g., quick change, swing 17" over shears.
- 17" x 8' new National, quick change.
- 17" x 8' new Sidney, d. b. g., quick change, swing 21" over shears, (4).
- 19" x 8' new Sidney, d. b. g., quick change, (6).
- 20" x 10' Blaisdell.
- 20" x 12' Schumacher-Boye.
- 24" x 20' Reed.
- 28" x 13' Harrington.
- 32" x 24' Fay & Scott, raising blocks to 53".

VERTICAL BORING MILLS.

- 36" Baush, two heads.
- 10' Bement, two heads.

SCREW MACHINES.

- 3" x 36" Jones & Lamson, (2).
- 14" S. & K. wire feed.
- 2" x 24" Jones & Lamson.
- 14" x 5' Lodge & Shipley, wire feed.
- 1½" S. & K. back geared, wire feed.

DRILLING MACHINES.

- 20" Rockford, high duty, (2).
- 36" new Superior, sliding head.
- 32" new Superior, sliding head.
- 28" new Superior, sliding head.
- 25" new Superior, sliding head.
- 28" new Superior, sliding head, with tapping attachment.
- 20" new Superior hi-speed.
- 20" new Superior.
- 16" new Superior hi-speed.

RADIAL DRILLS.

- 5' Bickford, speed box drive.
- 4' Dresses, speed box drive.

PLANERS.

- 48" x 48" x 12' D. & H., open side, one head on rail, one on side.
- 36" x 36" x 8' Hamilton, two heads.
- 49" x 36" x 12' Betts, one head.
- 30" x 30" x 10' Bement, two heads.
- 36" x 36" x 10' Gray, two heads.
- 27" x 25" x 6' Putnam, two heads.

SHAPERS.

- 20" new Steptoe, b. g.
- 16" new Steptoe, b. g.
- 14" Traveling head shaper.

MILLING MACHINES.

- No. 2 new Kempsmith universal.
- No. 0 new Steptoe hand.
- No. 3 new Burke bench.
- Beaman & Smith vertical spindle, table 24" x 6".

GRINDERS.

- 10" x 20" Bath universal.
- 8" x 18" Landis plain.
- Landis internal grinder.
- No. 2 new Grand Rapids universal cutter, drill and tool.
- No. 190 new Wells univ. tool and cut.

PIPE AND BOLT MACHINES.

- 2" Jarecki pipe machine.
- 4" Saunders pipe machine.
- 14" new Wells bolt machine.

HAMMERS.

- 250 lb. new Little Giant, belt.
- 100 lb. new Little Giant, belt.
- 100 lb. Beaudry.
- 50 lb. new Little Giant, belt.
- 25 lb. new Little Giant, belt.

PUNCHES AND PRESSES.

- 18" thrt. Industrial dbl. end punch.
- 8" throat geared punch.
- No. 1-C Badger shear.
- No. 138 new Max Ams press.
- No. 139 new Max Ams press.
- No. 126-A new Max Ams press.

MISCELLANEOUS.

- Broaching press, 30-ton Watson-S.
- Gear cutter, 8" Dwight auto.
- Gear cutter, 84" Bliss, spur.
- Pitt lathe, 7' swing.
- Profilers, No. 3 Garvin.
- Threading lathe, 16" x 10' automatic.
- Thread miller, 4" x 15" Cleveland.

SECOND-HAND MACHINERY

FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

DRILL PRESSES.

No. 2 Avey high speed drill.
No. 1 three spindle Avey.

1 spindle H. & W. high-speed.

GRINDERS.

No. 1 Cincinnati, universal.
No. 1 Norton full univ. tool & cutter.
14" x 50" Norton plain.
9" x 29" No. 2 Bath univ. grinder.

4" x 30" P. & W. sizing grinder.
12" x 32" Landis plain grinder.
No. 190 Wells univ., new.

LATHES.

28" x 14" Hamilton, taper.
16" x 8" Prentice Bros. taper att.
18" x 8" Shumacher & Boye, q. c. g.

14" x 6' Lodge & Shipley, q. c. g.
20" x 10' Schumacher & Boye, taper.
9" x 4' Star.

SCREW MACHINES.

1" Cleveland automatics, (2).
1 1/2" x 9" Acme, friction head.
No. 8 W. & S. 24" cap., fric. head.
No. 1 Foster, plain head, cap. 18-16".

No. 4 Foster, plain head.
No. 222 Garvin 1 7-16" cap., fric. hd.
1" Foster-Kimball, plain head.
1" Smurr & Kamen, plain head.

MISCELLANEOUS.

Boring mill, 36" Niles.
Center chucks for ball case grinder.
Filer, No. 2 Cochrane-Bly.
Gear cutter, No. 12 B. & S. auto.
Hand wheel turning attachment.
Miller, univ., No. 14 Brainard.
Pipe machine, 3" Stover.

Polisher, No. 4 Diamond, motor driven, 230 v., d. c.
Punch press, No. 76 Toledo, o. b.
Shaper, crank, 16" Barker.
Shaper, 24" Cincinnati, back geared.
Turret lathe, 24" x 24" W. & S.
Valve millers, for brass.

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York
Located at Chicago, Boston and New York

LATHES.

15" x 7' P. & W. speed lathe.
16" x 8' VonWyck, quick change.

30" x 16' Niles, b. g.

TURRET MACHINES.

1" 4-spdl. old style Acme auto.
1" Spencer single turret automatic.
1" x 4" P. & W. turret lathe.

2" x 24" Jones & Lamson, cone head.
24" size 1 Gisholt, 220 v., d. c., m. d.
28" Milwaukee turret lathe.

PLANERS.

20" x 20" x 6' Pratt & Whitney.
24" x 24" x 8' Pratt & Whitney.
30" x 30" x 6' Pond, 2 heads.
30" x 30" x 8' Pond, 2 heads.

30" x 30" x 10' Pond, 2 heads.
30" x 30" x 12' Pond, 2 heads.
30" x 30" x 14' Pratt & Whitney, 1 hd.

DRILLING AND BORING MACHINES.

13" friction sensitive drill.
60" Niles gooseneck drill.
14" 4-spindle turret drill.
17" 4-spindle gang drill.
No. 5 Dallet portable drill.
3" Grant radial drill and boring mch.

3" Bement radial drill.
4" Bickford plain radial, speed box.
6" Pond radial 220 v., d. c. motor.
7" Pond radial, 220 v., d. c. motor.
2" sp. old style horizontal boring and drilling machine.

MISCELLANEOUS.

Crane, 20 ton, 41' span, 220 v., d. c. motor.
File sharpener, American.
Gear cutter, spur and bevel, 24" Newark.
Gear cutter, spur, 42" Bement.
Gear planer, bevel, 42" Gleason, old style.
Grindstone, 34" Cleveland.
Grinder, wet, saw, No. 1 Tindel.
Grinder, cutter, No. 1 Cincinnati.
Grinder, wet, dbl., 24" cup wheels.

Miller, plain, No. 22 Brainard, b. g., range 29x7x20".
Miller, plain, No. 3 Cincinnati old style, range 24x6x18".
Miller, univ., No. 2 Milwaukee, cone drive.
Miller, slab, No. 6 P. & W., table 42" x 17".
Miller, No. 7 P. & W. dbl. head, table 120" x 20".
Shaper, crank, 12" Bement.

SECOND-HAND MACHINERY

FOR SALE BY

Federal Machinery Sales Co., 10 N. Jefferson St., Chicago, Ill.

Federal "Rebuilt-Rite" Used Tools
Immediate delivery.

BORING MILLS.

42" Colburn vertical boring and turning mill, two swivel heads.
72" Niles vertical boring and turning mill, two swivel heads.

DRILLING MACHINES.

20" Silver, wheel and lever feed.
Foote-Burt heavy duty, 20" swing, gear box drive, plain table.

24" Aurora, sliding head, b. g., p. f., square table.

30" Prentice, sliding head, b. g., p. f.

32" Barnes, sliding head, b. g., p. f., friction reversing pulleys for tapping.

GEAR CUTTERS.

22" Gould & Eberhardt automatic, spurs and bevels.

36" Whiton automatic, spur gears only.

15" Gleason 2-tool bevel gear generator.

24" Fellows gear shaper.

36" Fellows gear shaper.

GRINDERS.

No. 1 Cincinnati universal cutter. | Landis No. 3 universal, cap. 12"x42".
Landis 16"x66" plain grinder. | Landis 12"x96" plain grinder.

LATHES.

9"x 4' Seneca Falls, compound rest, hollow spindle.

12"x 5' Shepard, c. r., h. s. taper attachment.

15"x 6' Seneca Falls, c. r., h. s., semi-q. c. g.

16"x 8' Lodge & Davis, compound rest, high speed.

21"x 8' Greaves-Klusman, compound rest, hollow spindle.

24"x12' Putnam, r. and f. rest, solid spindle.

30"x16' Powell, compound rest, solid spindle.

26-46"x22' McCabe, double spindle, c. r., h. s.

MILLING MACHINES.

No. 25 Becker, plain (range 34x8x18").

No. 9 Kempsmith, plain (range 36x7x20").

No. 2 Pratt & Whitney, Lincoln type.

PIPE MACHINES.

6' Eaton, Cole & Burnham, motor driven.

8' Eaton, Cole & Burnham, belt driven.

PLANERS.

24"x24"x 6' Powell, one head, good as new.

36"x36"x 8' Niles, 2 rail heads.

PRESSES, PUNCHES AND SHEARS.

No. 3 Niagara o. b. i. presses. (\$).

No. 3 American can o. b. i. press.

Nos. 18, 19, 20 and 21 Bliss presses.

No. 18 Williams & White single end punch and shear, 10" throat, capacity 6" through 8".

Lambertville double end punch and shear, 22" throat, cap. 14" in 3".

150-ton United Engineering & Foundry Co. steam hydraulic forging press.

P. S. & W. 30" foot power squaring shear, No. 14 guage.

P. S. & W. 36" foot power squaring shear, No. 14 guage.

P. S. & W. 52" power squaring shear, No. 14 guage.

SHAPERS.

14" Steptoe plain crank.

16" Steptoe plain crank.

SCREW MACHINES AND TURRET LATHES.

1" Pratt & Whitney hand screw machine, good as new.

1" Bardons & Oliver hand screw machine, good condition.

2" Garvin hand screw machine, gd. fric. hd., pr. fd. turret.

2" Warner & Swasey gd. fric. hd., pr. fd. turret screw machine.

MISCELLANEOUS.

Arbor press, No. 4 Greenerd.

Nut tapper, 5-spindle, 1" National.

Bolt header, 1" Chapin.

Pipe machine, 4" Bignal & Keeler.

Cold saw, 3" Smith & Post.

Riveter, 1" Schuster.

Hack saw, No. 1 Racine h. s., pwr.

Speed lathe, 12"x5" comp. slide rest.

Send for complete "Purple List."

SECOND-HAND MACHINERY
FOR SALE BY

Henry Prentiss & Company, Inc., - Singer Bldg., New York
Formerly
Prentiss Tool & Supply Company

BORING MACHINES.

2-spindle Moline adjustable center cylinder borer.

DRILLING MACHINES.

1-spindle Henry & Wright ball bearing, sensitive, 24" swing.	28" Blaisdell, sliding head.
4-spindle Woodward & Rogers.	36" Bickford plain radial.
4-spindle Barr.	54" Bausch post radial.
42" Hamilton radial.	28" Sibley & Ware.
	10 spindle Gardam adjustable.

GRINDERS.

BX Yankee tool grinder.	No. 6 Bryant internal.
12x60 Landis universal.	18-30x96 Norton.
No. 60 Heald cylinder.	No. 11 Rivett, oscillating.
No. 2 Garvin hole grinder.	6x48 Pratt & Whitney.
6x32 Norton plain.	No. 2 Oesterlein universal.
No. 50 Gardner double ring wheel.	"H" Point Yankee twist drill.

LATHES.

11" x 6' Mann.	28" x 14' Pond, compound rest.
12" x 8' Garvin.	22" x 10' Lodge & Shipley, selective head, (2).
16" x 8' Porter, compound rest, power cross feed.	26" x 14' Gleason, compound rest, power cross feed.
16-32" x 10' Fay & Scott gap lathe, (new).	36" x 14' Pond, compound rest, power cross feed.
18" x 10' Schumacher & Boye.	44x16 Niles, double back geared.
18" x 8' Rahn-Carpenter, compound rest, power cross feed.	56" x 24' Wood Light.
18" x 8' American, compound rest, quick change, taper attachment.	84" x 30' Putnam.

MILLING MACHINES.

No. 1 Kempsmith, universal.	No. 4 Burke bench miller.
No. 2 Cinti. plain.	Grant manufacturing.
Rivett swivel miller.	No. 3 Reed plain.
No. 2 Garvin hand miller.	No. 2 Pratt & Whitney hand.
No. 3 Garvin plain.	No. 2A Garvin plain.

PLANERS.

26" x 26" x 6' Lodge & Davis.	26" x 26" x 5' Pond.
23" x 25" x 10' Sellers, 1 hd.	36" x 36" x 14, Lodge & Davis, 2 hds.

SCREW MACHINES.

18" No. 54 National Acme auto.	2x24 Jones & Lamson.
20x7 F. & S. universal turret.	No. 7 Bardons & Oliver.
15x6 Windsor turret.	1" Rivett, wire feed.
20" Jones & Lamson, single pulley drive.	1" Pratt & Whitney.
22" Cleveland automatics, (32).	1" National-Acme automatic.
	1" Rivett, plain turret.

MISCELLANEOUS.

Brake, 4' Ohl, double cam.	Keyseater, No. 1 Davis.
Broaching machine, No 3 Lapointe.	Pinion cutter, No. 1 Slate.
Gear cutter, 26x10 Cincinnati.	Shaper, 24" Hendey.
Gear cutter, No. 2 Whiton.	Shaper, 24" Flather.

SECOND-HAND MACHINERY

FOR SALE BY

W. D. Mann,

Band saw, 27" Chic., tilt table.	\$ 50.	Miller, No. 1 Garyn universal
Drill, 14" D. Slate 4 sp., sl. hd.	120.	Planer, 24"x24"x5" Gray.....
Folder, 26" P. S. & W., 2 grips	40.	Punch pr., o. b. i., No. 20 Bliss
Grinder, 2"x5" arbor, S. E. W. Company	85.	Punch pr., o. b. i., No. 5 Toledo
Grinder, 24"x27" Milw., water.	45.	Roll, 36" Toledo, power, 1700 lbs..... \$ 175.
Lathe, 6"x22" precision.....	60.	Screw mch., 14" B. & O. 2-j. ck.
Lathe, 13"x8" Willard, d. b. g.	275.	Shaper, 14" Lodge & D., crank
Lathe, 16"x6" Perkins, A-1 order		Shear, 52" gap, foot pwr. sq.... 175.

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

TURRET LATHES.

The following Turret Lathes in stock at the above address:

3x36 J. & L., bar equipment, cone drive.
2x24 J. & L., gr. and set-over head, single pulley drive, bar equipment, (15).
2x26 P. & W., all feeds, oil pump, bar equipment, b. g. friction head, (8).
No. 2 W. & S., 14" auto. chuck cap., b. g., friction head, (3).
No. 4 W. & S., 16" auto. chuck, b. g., friction head, (4).
Cincinnati-Acme, 14"x9" auto. chuck, bar equip., b. g., friction head, (8).
No. 3 Smur & Kamen, 14" auto. chuck capacity, oil pump, auto. feeds to turret, plain head, (15).
No. 3 Foster, 14" auto. chuck cap., oil pumps, plain head, (4).
No. 2 W. & S., 14" auto. chuck cap., b. g. friction head, (3).

FOR SALE BY

Peninsular Machinery Co.,

Drill, 10" Hoefer, friction disc.
Grinder, No. 1 LeBlond universal.
Grinder 10"x36" Thompson, univ.
Grinder, drill and tool, Grand Rapids
Grinder, No. 3 Blount, emery.
Grinder, No. 6 Blount, emery.
Grinder, Blount, 14" wet tool.
Groover, No. 3 Niagara.
Hobber, No. 1 Adams-Farwell.
Lathe, 12"x 6" Prentice, eng., gd. hd.
Lathe, 16"x 8' LeBlond, eng., q.c. g.
Lathe, 17"x 6' LeBlond, rap. produc.

110 Beaubien St., Detroit, Mich.

Lathe, 17"x 8' LeBlond, h. d. auto.
Lathe, 17"x10' LeBlond, automobile.
Lathe, 20"x10' LeBlond, engine.
Lathe, 26"x10' LeBlond, crank shaft.
Miller, No. 1 Van Norman, hand.
Miller, No. 1 U. S. hand.
Miller, No. 3H LeBlond, universal.
Press, No. 1 Michigan, o. b. i.
Shaft, Stow flexible.
Shaper, 16" Barker, crank.
Shaper, 16" Walcott, crank.
Sprue cutter, Gould & Eberhardt.

FOR SALE BY

Colman Machinery & Tool Co., Inc. 38 Park Row, New York, N. Y. Telephone, 5957 Cortlandt.

Air compressors, type N. S. B., 8x8 and 9x8 Chicago Pneumatic, new, (2).
Bolt cutter, 2" Landis, complete with dies; new.
Drill, No. 3 Baush 24-spindle multiple; new.
Grinder, No. 3 Modern universal; new.
Hydraulic wheel press, 100-ton Watson-Stillman; new.
Planer, 48"x48"x19" with two heads; used.
Straightening rolls, 5'; used.
Shapers, 15" Hendey; new, (2).
Shaper, 18" Hollingsworth, crank, back geared; new.
Shaper, 24" Hollingsworth, crank, triple geared; new.
Shear, Henry Pels, cuts 24 round, 24 square, 39x18 or 7x2 flat; used.

We have other tools. Send for our list.

SECOND-HAND MACHINERY

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,
1001-3-5 N. Sixth St., St. Louis, Mo.

LATHES.

16"x8' American, q. c.
18"x8' old style.
22"x10' old style.

20"x8' Reed.
22"x24' Forsaith.
18" Fox lathe.

MOTORS AND GENERATORS.

15 h. p., 3 ph., 60 cy., 440 volts.
10 h. p., 4 ph., 60 cy., 440 volts.
17½ k. w., 125 volt, d. c. generator.

50 k. w., 125 volt generator.
60 k. w., 3 ph., 60 cy., 480 v. generator.

MISCELLANEOUS.

Beader, No. 0 Niagara, heavy.
Bolt cutter, 1½" Acme double.
Drills, 20-spindle, (2).
Forming press, 20-ton hydraulic.
Grinder, plowshare, No. 35.
Hammer, 25 lb., helve.
Hammer, 40 lb. Bradley helve.

Hammer, 80 lb. Yeakley vacuum.
Notching press, No. 61 Bliss.
Nut tapper, 6-spindle, 2".
Punch, No. 17 Williams-White dble.
Punch, No. 12 Williams-White dble.
Ram presses, Bliss, double, (2).

FOR SALE BY

Cyril J. Bath & Co.,

721 St. Clair St., Cleveland, O.

Stock now on hand.

DRILLING MACHINES.

No. 11 Natco 8 spindle hi-speed adjustable multiple, late model, practically good as new, 12" around, heads about 4" capacity, (2).
2-spindle Henry & Wright hi-speed ball bearing sensitive, 1½" belt. In good condition.

20" Barnes wheel and lever feed, plain, round table, planed base.
20" Silver plain wheel and lever feed, round table, planed base, (2).
26" Barnes, slid. hd., b. g., p. f., planed base, No. 4 Morse taper, very fine. Bement heavy drilling and coring machine, for heavy forging and structural work, cap. up to 20" holes, 52" bet. housings, 8" spdl., 36" fd., first class.

GEAR CUTTERS.

24" Fellows gear shaper, late model, excellent shape, complete.
No. 3 B. & S. 26"x8x4 d. p., wt., about 3200 lbs., very fine shape, late model.
48"x16" Gould & Eberhart spur gear and pinion cutter. Heavy machine horizontal cutting type; good condition.
18"x10" Gould & Eberhardt hobbing machine, cone drive; good condition.
18"x6" Grant Lees gear hobber for worms, spirals or spurs. Very fine shape.

GRINDERS.

No. 2 B. & S. univ., belt feed, overhead counter; all parts in fair condition.

LATHES.

16"x8" Lodge & S., double back gd., 18" swing, q. c. g., c. r., excellent cond.
18"x10" Le Blond, c. r., belt feed, with hollow spds. and full equipment, (2).
24"x11" Johnson, gear f., comp. rest, hollow spd., good condition, complete.
Bullard gap turret lathe, 49" swing, 4-jaw 28" chuck. 36" maximum distance from turret to chuck. All in very good condition.

PRESSES.

163-C Consolidated double crank press, 52" between housings, 2½" stroke, 34" shaft, 10" die space, geared, good as new.
No. 2 Waterbury Farrel rack and pinion press, 25" stroke, weighs about 7500 lb., very good condition.

SCREW MACHINES AND AUTOMATICS.

No. 6 B. & S. w. f. screw mch., cap. 1½"x10", good as new. Full equipment.
2" Cleveland automatic with set of tools. New model type; good as new.
2"x24" J. & L., with chucking equipment & collet, reverse position, chuck, pump, etc., belt feed, sliding geared head, fine condition.

MISCELLANEOUS.

Hammer, 75 lb. Bradley upright strap complete; first class shape.
Hydraulic indexing presses, special, built to draw cartridge cases for 3" shells up to 18" long; good as new, (2).
Hydraulic hi-pressure pumps, Gould triplex, capacity about 30 gallon, 2,000 lbs. pressure, 2½ plungers; good as new, (2).
Rolls, 1 set Berlisch, 3 roll, 9" diam. open end, pyramid type, geared belt driven; very good.

SECOND-HAND MACHINERY

FOR SALE BY

C. M. Thompson Co.,

35 S. Clinton St., Chicago

SHELL GRINDERS.

Two 10x24" Norton plain special shell grinders, equipped with wheels 6 $\frac{1}{2}$ " face, 20" diameter.

FLAT TURRET LATHE.

One 2 $\frac{1}{2}$ "x24" Jones & Lamson flat turret lathe, full bar equipment.

FOR SALE BY

Clark Machinery Co.,

1302 Ontario Ave., Cleveland, O.

Brake, 6' Robison.
Centering machine, No. 1 P. & W.
Cutting-off machine, 4"
Drill press, 4-spindle 20" Barnes automatic, all spindles power feed.
Drill press, 2-sp., 20" b. b. Henry & Wright.
Drill presses, 4-spindle b. b. Henry & Wright, (2).

Gear cutter, No. 1 Standard auto.
Grinder, No. 1 Landis universal.
Grinder, No. 1 Standard universal.
Miller, double end valve.
Miller, Garvin, Lincoln type.
Plating dynamo, 1000 amp., 5 volt.
Screw machine, 2 $\frac{1}{2}$ " Hartford auto.
Testing machine, 2000 lb. Olson.
Testing machine, Keihl Bros.

FOR SALE BY

The Enterprise Machinery Co.,

28-30 S. Clinton St., Chicago.

Ball race grinder, in- & outside $\frac{1}{2}$ 400.
Blower, Garden City, 5" op'g. 175.
Boring mill, cyl., Hoefer 2-sp. 1400.
Brake, 8' Chicago, 18g..... 100.
Crane, 40'-20 ton, electric.....
Drill, 30" 5000 lbs, 4 tool, b.g.,
p. f., 10" column, turret head 500.
Fox lathe, Monitor Am., good 275.
Lathe, 18"x8", New Haven, c.r. 225.
Lathe, turret, 18", 3" belt..... 150.
Miller, Merritt, div. hd., hvy... 450.
Oil separator, No. 2..... 45.
Pipe threader, 4" self opening, 275.

Punch, shear & r. c. 2x $\frac{1}{2}$ 8 125.
Punch press, Bliss No. 18..... 125.
Riveter, Grant, bench, like new 90.
Sand mixer, 9' American Clay 2000.
Saw, band, Wm'son, good cond. 100.
Screw press, arch, 7' arm, hvy. 125.
Screw mch. 2 $\frac{1}{2}$ " Pratt & W..... 200.
Scr. mch., Acme No. 53, 4-sp. 1" 1400.
Shear, 30" Niagara foot..... 30.
Tapper, dbl. sp., W. & P. auto. 250.
Shaper, 18" Juengat, worm..... 350.
Wood borer, 10 sp. adj. 4"..... 700.
500 other tools. Write us.

FOR SALE BY

The O'Brien Machinery Co.,

119 N. Third St., Philadelphia, Pa.

Drill, 24" Richards, sl. hd., b.g., p.f.
Drill, 26" Aurora.
Grinder, Gisholt, cutter.
Grinder, combination Yankee twist
drill and cutter grinder.
Lathe, 14"x6" Putnam, turret att.
Lathe, 16"x8" Champion, taper att.
Lathe, 16"x9" Lehman.
Lathe, 16"x10" Cisco.
Lathe, 17"x8" Champion, taper att.
Lathe, 18"x8" Cincinnati.
Lathe, 18"x8" Cisco.
Lathe, 21"x14" New Haven.
Lathe, 24"x20" Milwaukee.
Miller, No. 18 Cincinnati univ.
Planer, 16"x16"x3" New Haven.
Presses, ft. pwr., about 30 assorted.
Press, No. 2 Philadelphia, straight
back.
Press, DD-46 Ferracute straight col.
dbl. action drawing, wt. 21,000 lbs.
Radial drill, 3' Dreses plain.

Press, EG Ferracute, toggle type,
400 ton pressure.
Press, EG Ferracute, toggle type,
600 ton pressure.
Press, Stiles & Parker toggle joint
drawing press, wt. about 3000 lbs.
Press, No. 665 Toledo toggle embossing
and coining, geared.
Rifling mch., horiz. boring or rifling
mch., wt. about 10,000 lbs.
Rolls, 10' bending rolls, 10" diam.
Saws, 30" Espen Lucas, mtr. dr. (2).
Screw machine, 2 $\frac{1}{2}$ " Warner & Swasey,
wire feed turret.
Screw machine, 24" Cleveland auto.
Shaper, 14" Smith & Mills, plain.
Shaper, 16" Smith & Mills, plain.
Shaper, 24" Hollingsworth.
Spinning lathe, No. 5 Bliss auto.,
22" swing.
Spinning lathe, 44" swing, heavy
duty.

SECOND-HAND MACHINERY

FOR SALE BY

Dale-Brewster Machinery Co., Inc.,
545-7 Washington Blvd., Chicago **50 Church St., New York**

LATHES-NEW.

14" Davis close-coupled tool room, oil pan, taper attach.
 18" x 8" Cisco heavy duty, q. c. g.
 18 $\frac{1}{2}$ " x 7" Fulton heavy duty turret.

16" x 6' Monarch, q. c. g.

20" x 8' Wickes, heavy duty.

6" x 30" Dalton bench lathe.

SHAPERS.

14" Davis, cone drive.
 16" Davis, gear box drive.

20" Davis, gear box drive.

24" Davis, gear box drive.

DRILLS-NEW.

14" U. S. h. s., sensitive.
 Langelier, h. s., b. b.

20" power drills, b. g., p. f., s. s.

MISCELLANEOUS-NEW.

Boring mill, 42" Colburn, swings
 48", used.

Hack saws, power.

Grinder, Cleveland, profile.

Millers, No. 1 U. S., hand.

Grinder, No. 1 LaSalle, surface.

Miller, No. 2-A Fox universal.

Grinders, Nos. 2, 3, 4, & 5 Partridge,
 floor.

Punch press, Partridge.

Tappers, Partridge Nos. 1 & 2.

Note: Have complete stock milling cutters, drills, etc. Have horizontal
 drilling and boring machines for very good delivery. Send us your inquiries.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES.

9" to 13" Barnes, comp. rest, new.
 13-15-16 and 18 O. & S., h. s., c. r., new.
 14" x 6' Hamilton, h. s., comp. rest.
 18" x 6' Mueller, turret on shears.
 18" x 8" Fitchburg, h. s., cp. r., (2).
 18" x 8' Prentice, geared head.

18" x 8' Hamilton, dbl. bk. gr., new.
 20" x 8' Prentice, geared head, (2).
 20" x 10' Monarch, q. c. h. s., cp. r. (2).
 22" x 10' Hamilton, dbl. bk. gr., new.
 24" x 12' South Bend, h. s., cp. r.
 30" x 12' Fitchburg.

TURRET LATHES AND SCREW MACHINES.

1" Garvin hand screw machine.
 1" S. & K. hand screw machine.
 1" Wood hand screw machine.
 1" S. & K. hand screw machines.

2x24 J. & L., bar equipment.
 3x36 J. & L., with bar equipment.
 20x8 Lodge & Davis, pr. fd. turret.
 21" and 24" Gisholt turret.

SHAPERS AND PLANERS.

16, 18 & 24 Barker, crank, new.

24" x 24" x 6' Sellers.

PRESSES.

1000 lb. inclinable, 24" stroke.
 Nos. 2 & 4 Toledo inclinable.
 No. 3 Sidney 1800 lb. inclinable.

Perkins, dbl. housing, 16x24.
 355 Bliss, toggle drawing, 42,000 lbs.
 Hydraulic, 37" bet. uprights.

DRILLS AND RADIALS.

Henry & Wright sgl. spdl., high spd.
 8-spindle, adjustable centers.
 4' Bickford plain, gear box.
 4' Western universal, variable spd.
 4 $\frac{1}{2}$ ' Universal, cone drive.

3 $\frac{1}{2}$ ' Canedy-Otto radial, plain, new.
 4 $\frac{1}{2}$ ' Plain radial, Baush.
 Sensitive 1, 2 & 3 spindle.
 Sliding head 24", 26" and 28".
 Quint 6-hole turret.

MILLING MACHINES.

No. 1 $\frac{1}{2}$ Valley City plain, new.
 No. 2 B. & S. heavy, plain.
 No. 3 H. heavy LeBlond univ. new.

No. 3 Brainerd plain, table 30x7 $\frac{1}{2}$.
 Garvin, hand and power, 15" travel.
 No. 1 U. S. hand, new.

GRINDERS.

8" x 36" Hartford, surface.
 30x10 Webster & Perks, universal.

Grand Rapids, cutter and reamer.
 Wilmarth & Morman, cut. and ream.
 Hammer, 50 lb. Bradley compact.

Keyseater, Catlin, 14" keyseats, new.
 Motors, 1 to 50 h. p., 220 v., 3 phase.
 Press 10' 6" between housings, Covington.
 Squaring shear, 30 & 36", 20 gauge.

MISCELLANEOUS.

Automatics, 4" Gridley, multiple spindle, (7).

Keyseater, Catlin, 14" keyseats, new.

Band saws, metal, 30" Wright, (2).

Motors, 1 to 50 h. p., 220 v., 3 phase.

Borer, 42" car wheel, with hoist.

Press 10' 6" between housings, Covington.

Boring mill, 32" Baush, turret bd.

Squaring shear, 30 & 36", 20 gauge.

Cut-off machine, 3" Davis.

SECOND-HAND MACHINERY

FOR SALE BY

Lehmann Machine Co., **606-12 S. Broadway, St. Louis, Mo.**

BOLT CUTTER.

One No. 5 Schlenker 2-dial bolt cutter, built by The Howard Iron Works, Buffalo, N. Y. Cuts threads from $\frac{1}{4}$ " to and including $1\frac{1}{2}$ " diameter. Has following dies with machine: $\frac{1}{4}$ " up to and including $1\frac{1}{2}$ ", 1" and $\frac{3}{4}$ " pipe dies also have above master taps. Price \$150. Good condition.

CIRCULAR COLD METAL SAW.

One No. 12 Higley, including two 15" saws. Good condition, \$275.

FOR SALE BY

J. L. Osgood,

Chucking lathe, 21" P. & J.
Chucking lathe, 24" Davis.
Grinder, cylinder, No. 60 Heald.
Lathe, eng., 9" Barnes.
Lathe, 17" x 8" Blaisdell, and chuck.
Lathe, 24" raised to 34", Fifield 12" bed, chuck.
Piston and ring machine, Gridley automatic, motor drive.

45 Pearl St., Buffalo, N. Y.

Screw machine, hand, No. 1 Foster.
Screw machine, hand, $\frac{1}{2}$ " B. & S.
Screw machine, hand, 1" P. & W. hex. turret.
Screw machines, No. 5 Warner & S.
Spur gear testing mch., Gleason.
Time recorder, International, 200 numbers.

FOR SALE BY

Swind Machinery Co.,

Widener Bldg., Philadelphia, Pa.

For Immediate Delivery.

Air forging hammer, No. 3 Nazei Beche, capacity 5x5", used.
Engine lathe, 13" x 6" Worcester, in excellent condition.

NEW MACHINES.

Cold metal sawing machines, 3 $\frac{1}{2}$ ", (5).
Drill press, 3-spindle Kern, ball bearing.
Gear cutter, 26" automatic.
Oil grooving machines, (2).
Shear, rotary ring and circle, capacity No. 10 gauge, circles 10" to 60" diam.

FOR SALE BY

G. L. Bennett Machinery Co., Inc., **30 Church St., New York City**

LATHES.

92" x 28' trip. geared, Waymouth.
54" x 22' triple geared, Worcester, W. L. Co.
36" x 21' compound g'd, f. p. drive, Bement.
28" x 21' D. W. Pond, heavy, c. r.

24" x 21' New Haven, c. r.
24" x 12' D. W. Pond, c. r.
20" x 10' Flather, c. r.
18" x 10' Flather, q. c. g'r.
16" x 10' F. E. Reed.
16" x 6' Hendey.

PLANERS.

62" x 62" x 22' Bement, 4 heads.
42" x 42" x 16' Bement, 3 heads.

36" x 36" x 18' Sellers, 1 head.
26" x 26" x 6' Putnam, 1 head.

SELECTED

SPECIALS.

Boring machine, Fitchburg horiz., 24" bar.
Car-wheel borer, 50" Sellers.
Car-wheel lathe, 42" Niles.
Drills, 36"-42" Gould & Eberhardt.
Driving-wheel lathe (R. R.), 80" Bement.
Millers, vert., No. 2 H. & J., rev. table.
Pipe machines, 14" E., C. & B.; 6" Jarecki.
Press, No. 95 Blas, s. s.

Radial, 6' Niles full universal.
Shear, bevel plate, No. 2 Thomson.
Ship-keel bender, hydraulic.
Turret, 34" Gisholt, 4 $\frac{1}{2}$ " hole, taper attachment.
Turret lathe, 2x24 J. & L. geared hd.
Turrets, W. & S., P. & J., Bullard and others.
Vert. mills, 52" Niles, 36" Bridgeport, 30" turret; 12', 3-head Bement & Dougherty mills.

Also 80 other miscellaneous tools. Write requirements.

SECOND-HAND MACHINERY

FOR SALE BY

Herman L. Winterer.

943-53 N. Front St., Philadelphia, Pa.

LATHES.

34" x 12' Pond, q. c. g.
26" x 10' Pittsburgh, d. b. g.
21" x 16' Fifield.
21" x 14' Blaisdell, b. g.
20" x 8' Putnam.

20" x 8' Perkins.
19" x 10' Fitchburg, b. g., (2).
18" x 12' New Haven, b. g.
18" x 10' Davis.
18" x 6' Lodge & Davis.

TURRET LATHES.

2" x 24" Jones & Lamson.
7" x 14" Potter & J., semi-automatic.

3" x 28" Lodge & S., chucking.
27" chucking.

MISCELLANEOUS.

Bolt cutter, 23" Landis.
Cold saw, 20" Newton.
Core mchis., 2" and 4" Wadsworth.
Drill presses, all sizes.
Grinder, No. 17 Besly, disc.
Keyseater, No. 2 Davis.

Miller, No. 14 Garvin.
Miller, No. 15 Garvin.
Planer, 32" x 8' Hewes & Phillips.
Planers, 20 to 24", 6 and 8' beds, (6).
Roll grinder, 10" x 36".

Large assortment of Boilermakers' and General Machinery.
Send for complete list.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

ENGINE LATHES.

14" x 6' Putnam stud lathe.
14" x 6' Lodge & Shipley, q. c.
14" x 6' Lodge & Shipley, pat. head, q. c., taper.
14" x 6' Hamilton, c. r.

14" x 8' Prentice Bros.
16" x 6' Lodge & Davis.
18" x 8' Schumacher & Boye, taper attachment.
16" x 6' Rockford.

TURRET MACHINERY AND SCREW MACHINES.

No. 1 Acme, w. f., a. c. 8".
No. 0 Foster, w. f., a. c. 9/16".
16" x 6' b. g. Star plain monitor.

No. 5 Foster, all geared head, single pulley drive, p. f. to turret and cross slide, 1 13/16 a. c., with w. f.

MILLING MACHINES.

Newton 22x22" x 5", slab, miller planer type.
Newton, heavy, plain column, 48" auto. table feed, vertical, horizontal and rotary milling attachment.

MISCELLANEOUS.

Bulldozer and bending mch., vert., 8" stroke, for work 60" long, wt. 7000 lbs.

Punch, grd., 27" throat, 1" thru 1".
Punch and shear No. 52 Slater-Marsden & Whitmore.

Car-wheel borer, 48" Bement, with hoist and chuck jaws.

Punch and shear, Badger No. 10½.

Fender wiring machine, Yoder.

Punch and shear, No. 54 Slater-Marsden & Whitmore.

Gear hobber, 18" Grant-Lees.
Grinder, surface, No. 3 LaSalle, table 10x28.

Shear, 24" Steptoe.

Grinder, 18" x 96" Landis.

Shears, square, 30" Niagara.

Grinder, gear cutter, 18" G. & E.

Shears, rotary, Ryerson, with rotary traveling cutter, for 20 gauge.

Grinder, cylindrical, 10x20 P. & W.

Shears, rotary, Collier Smith, 30" tht., for 14 gauge.

Grinder, valve seat, 4-sp. Foote-Burt auto., adjustable, minimum 2 1/2" center, maximum 22".

Shear, rotary circle and slitting, Niagara 15-A.

Hammers, helve, 15 lb. Bradley.

Shear, splitting, Badger No. 1-B.

Nut tapper, National, 4-spindle vertical, 1" cap.

Slotter, vertical, 12" Bement.

Steel brakes, 4' and 6'.

Wire straightener, power, 1" cap.

Large assortment of tinsers' tools, folders, rolls, punches, shears, electric motors and drills, buffing machines, grinders, arbor presses, lathe chucks, machinists' bench vises, gas furnaces, foot lever presses, hack saws, air compressors, fans, blowers, bench drills, filing machines, index centers, turret heads, anvils, tapping machines, bench lathes, band saws, rip and cross-cut saws.

SECOND-HAND MACHINERY

FOR SALE BY

W. L. Perkins, Jr.,

Lathe, 18" x 8' LeBlond, c.r., cross fd.
 Lathe, 20" x 8' American, c.r., cr. fd.
 Lathe, 20" x 6' Blaisdell, c.r., cross fd.
 Lathe, 20" x 8' Blaisdell, c.r., cross fd.
 Lathe, 21" x 8' LeBlond, c.r., cross fd.
 Lathe, 23" x 12' LeBlond, c.r., cross fd.
 Lathe, 26" x 16' shell boring.
 Lathe, 27" x 18' LeBlond, c.r., cross fd.
 Lathe, 30" x 12' Lodge & S., cross fd.
 Lathe, 32" x 12' Bridgeton, c.r., cr. fd.

149 Broadway, New York

Lathe, 46" x 20' Pond, c. r., cross fd.
 Lathe, 40" x 12' Fitchburg, c.r., cross fd.
 Lathe, 40" x 18', shell boring.
 Lathe, 80" Bement, dbl. hd., wheel.
 Miller, 20" Sellers, vertical.
 Miller, 24" x 14' Bement, slab.
 Punch, No. 3 Long & A., spacing.
 Shaper, 12" Smith & Mills.
 Turret lathe, 34" Warner & Swasey,
 hollow hexagon.

FOR SALE BY

Broadway Machinery Co., 236-238 Broadway, Cincinnati, Ohio

Boring mill, 34" Rogers vertical, turret head, single pulley drive.
 Grinder, 12x48 Modern, with universal head stock and full equipment.
 Grinding machine, Landis universal, complete equipment.
 Grinding machines, Bath universal, no equipment, (2).
 Milling machine, No. 2 Owen universal, complete equipment.
 Radial, 60" Fosdick plain, box column, tapping attachment, cone drive.
 Radial, 60" Bickford plain, round column, cone drive.
 Shaper, 20" Smith & Mills back geared crank.
 Shaper, 24" Niles back geared crank.
 Stamping and Punch Presses, Lathes, Drill Presses, Planers, Gear Cutters,
 Gas Engines, Motors, etc. — all sizes.

Let us know your wants.

FOR SALE BY

B. C. Allen Machinery Co.,

Boring mch., 48" Bement vert. \$ 750.
 Chucks, 4, 6, 10, 15, 20"
 Drill, 20" w. and l. 55.
 Drill, 24", sliding head 100.
 Drill, 26" b. g., p. f. 150.
 Grinder, Norton, very heavy... 2000.
 Hack saw, No. 2 Hoefer 10.
 Lathe, 12" x 6' Reed, eng. 135.
 Lathe, 14" x 8' Lodge & Davis. 290.
 Lathe, 14" x 8", with 10" chuck. 290.
 Lathe, 18" x 6", with 10" chuck... 325.
 Lathe, 24" x 6" Pratt & W., taper 625.

1000 W. Randolph St., Chicago,

Lathe, 28" x 12' Fitchburg.....	\$ 300.
Lathe, 36" x 16' Putnam.....	1150.
Lathe, 11" x 4' speed.....	35.
Miller, No. 4 Newton plain....	1500.
Miller, No. 6 Burke, and col....	50.
Miller, No. 3 Burke and col....	95.
Miller, No. 2 plain b. g.	275.
Pipe machine, 4" Armstrong....	125.
Press, foot.....	15.
Press, No. 3 power.....	135.
Shaper, 24" Cincinnati, b. g....	875.
Shear, squaring, 30".....	35.

FOR SALE BY

Brownell Machinery Co.,

Drills, 20" back gear, power feed,
 upright, new, (4).
 Drills, 24" Sibley, adjustable head,
 new, (3).
 Gear cutter, 26" No. 3 B. & S. auto.
 Gear cutter, No. 12 B. & S. auto.
 Gear generators, 12" Gleason, single
 tool.
 Grinder, Greenfield universal cutter
 and reamer, new.
 Lathe, 16" x 5' Reed, r. and f.
 Lathe, 16" x 8' Reed, r. and f.
 Lathe, 16" x 8' Flather, q. c. g., new.

11-13 Eddy St., Providence, R. I.

Lathe, 14" x 6' Rockford, new.
 Milling machine, Reed plain.
 Milling machine, Pedrick & Ayer
 heavy duty plain.
 Milling machine, No. 6 Becker, 50"
 feed, vertical, without rotary.
 Shaper, 24" Hendey.
 Screw machine, No. 2 Southworth,
 1" capacity, new.
 Screw machine, No. 4 Wood, geared
 friction head.
 Thread milling machine, No. 3 Lees-
 Bradner.

Immediate Delivery

High Grade Milling Machines

- 1—No. 0 Brown & Sharpe plain, 5" swivel vise, d. f. c. s., like new.
- 4—No. 1½ Cincinnati pl. cone type, 6" pl. vise, d. f. c. s., like new.
- 6—No. 1½ Brown & Sharpe pl., with 6" swivel vise, d. f. c. s., like new.
- 1—No. 2 Becker Brainerd Universal Miller, dividing head, swivel vise, vertical attachment, fine condition.
- 1—No. 24 Ohio Universal, dividing head, swivel vise, d. f. c. s.; used two months.
- 4—No. 25 Becker Brainerd plain back geared, fine condition.
- 4—No. 7 Becker Brainerd Lincoln Type Millers, back geared, good condition.
- 1—No. 6 Becker Brainerd plain back geared, vise, d. f. c. s., good condition.
- 2—No. 3 Garvin plain, with o. a. c. s., no back gears, good condition.
- 4—No. 4½ Garvin plain back geared, o. s., vise, c. s., good condition.
- 1—No. 3 Garvin single spindle profiler, with d. f. c. s., good condition.
- 1—No. 1 Garvin double spindle profiler, double t. & l. c. s. attached, good condition.

OTHER USED MACHINERY

Lathe

- 1—14"x6' Hendey, q. c. g., taper att.

Screw Machines

- 2—No. 2 Garvin, w. f., a. c.

- 3—No. 1 Garvin, w. f., a. c.

Drilling Machines

- 1—No. 1 Avey 3 spindle sensitive.

- 4—4 spindle Allen high speed sensitive, $\frac{1}{2}$ " capacity.

- 2—4 spindle Dwight slate sensitive.

- 1—No. 2 Quint 6-spindle turret.

- 3—20" Hoefer 4-spdl. gang, w. & l. f.

- 4—20" Barnes, w. & l. feed.

- 3—20" Rockford, w. & l. feed, with d. c. motor.

- 1—20" Rockford, w. & l. feed.

- 1—10 spdl. G. R. Multiple, $\frac{1}{2}$ " cap.

- 1—28" Hamilton, sl. head, p. f., b. g.

Miscellaneous

- 1—Alligator Shear, No. 1 Badger.

- 1—Baking Oven, 6' 3"x5' 6"x4' 9" Steiner.

- 1—Blower, No. 00 Sturtevant

- 1—Bolt Cutter, 1½" National.

- 4—Buffers, No. 22 Bridgeport, d. e.

- 1—Exhaust Fan, 45" Sturtevant.

- 1—Gas Furnace, 10"x8"x20" No. 4 Garvin.

- 1—Grinder, Diamond tool and surface.

- 5—Grinders, Hisey-Wolf, Type F., d. c.

- 1—Hack Saw, 6" Universal.

- 1—Magnetic Separator, Dings.

- 1—Oil Separator, 24-qt. Curtis.

- 1—Press, No. 2 Consolidated.

- 1—Press, No. 3 Consolidated.

- 1—Press, No. 60 Consolidated.

- 2—Presses, punch, No. P-S Ferracute.

- 1—Screw Slotter, Garvin, rapid.

- 1—Sifting Mill, Sturtevant.

- 1—Tumbling Barrel, Baird, steel.

- 2—Tumbling Barrels, Baird, double, wood.

- 1—Wire Straightener, No. 1 Shuster auto., 3-16" cap., 12" lengths.

Prices and Details on Application

McMullen Machinery Company

"Everything in Shop Equipment"

Grand Rapids, Michigan

One Pratt & Whitney turn table flat Turret Lathe, 2½" x 26", bar and chucking equipment, practically new.
One Pratt & Whitney Plain Cylindrical Grinder, 6" x 48", in good condition.
One Landis Plain Grinder, 12" x 42", in excellent condition.
One 30" x 30" x 15' Pond Planer, very heavy type, two heads on the cross rail.
One 30" x 30" x 14' Flather Planer, two heads on the cross rail.
One 36" x 16' Pond Planer, light rangy machine, one head on the cross rail.
One Bullard 30" swivel head Vertical Boring Mill.
One Lucas Horizontal Boring, Drilling and Milling Machine, 3" bar, in very good condition.

The above machines are immediately available.

Factory & Mill Supply Co.
137 Oliver St., Boston, Mass.

New Boston Show Rooms

W. H. J. Fitzgerald & Co.
30 Oliver St., Boston

- 1 Foote-Burt Company No. 23 Heavy Duty Drill, 20" swing, single belt drive, capacity $\frac{3}{8}$ " to 1¼", guaranteed good as new.
- 2 No. 2 Warner & Swasey Turret Screw Machines, plain head, automatic chuck, bar feed, hand longitudinal feed to cut-off, with power feed to hexagon turret.
- 2 No. 1 Warner & Swasey Turret Screw Machines, plain head, automatic chuck, bar feed, lever feed to cut-off only, automatic chuck capacity $\frac{5}{8}$ ".

These machines are in A-1 condition.

Six $\frac{1}{4}$ Inch Automatic Screw Machines (Stehli Patent)

Each fitted with screw slotting attachment. Manufactured by Hartford Machine Screw Company. These machines adapted to the rapid production of all kinds of small screws, bushings, studs, etc. Condition, good as new.

Re MANUFACTURED -(ORIGINATED BY US)- MACHINE TOOLS

FOR QUICK SHIPMENT

At Chicago—The Great Machinery Center

PUNCHES AND SHEARS

- 1— $9\frac{1}{2}$ " Robinson Power Brake.
- 1—No. 2 Bethlehem Slitting Shear.
- 1—No. 882 Niagara Power Squaring Shear.
- 1—No. 15 Williams & White.
- 1—No. 2 Long & Allstatter.
- 1—No. 1 Frech Punch.
- 1—No. 2 Frech Punch.
- 1—No. 43 Toledo.
- 1—No. 4 A Willard Incl.
- 1—No. 3 Robinson Incl.
- 1—No. 4 P. R. & K. Punch.
- 2—No. 73 $\frac{1}{2}$ Bliss S. S. Trimming
- 1—No. 5 V. & O. Geared Incl.

GRINDING MACHINES

- 2—No. 200 Heald, Piston Ring.
- 2— $18\frac{1}{2}$ " Gorton Disc.
- 1—Diamond Face.
- 1—No. 23 $16\frac{1}{2}$ " \times $36\frac{1}{2}$ " Landis Plain.
- 2—No. 1 $\frac{1}{2}$ Landis Internal.
- 1—No. 5 Bath Duplex.
- 1—No. 60 Heald Cylinder.

PLANERS

- 1— $22\frac{1}{2}$ " \times $22\frac{1}{2}$ " \times 6 " Gray.
- 1— $22\frac{1}{2}$ " \times $22\frac{1}{2}$ " \times 6 " American.
- 1— $24\frac{1}{2}$ " \times $24\frac{1}{2}$ " \times 4 " Gray.
- 2— $24\frac{1}{2}$ " \times $24\frac{1}{2}$ " \times 5 " Gray.
- 1— $24\frac{1}{2}$ " \times $24\frac{1}{2}$ " \times 6 " Cincinnati.
- 1— $24\frac{1}{2}$ " \times $24\frac{1}{2}$ " \times 6 " Gray.
- 1— $26\frac{1}{2}$ " \times $26\frac{1}{2}$ " \times 6 " American.
- 1— $36\frac{1}{2}$ " \times $36\frac{1}{2}$ " \times 10 " Whitcomb 2 heads.
- 1— $38\frac{1}{2}$ " \times $38\frac{1}{2}$ " \times 8 " Niles 2 heads.

DRILLING MACHINES

- 2— $2\frac{1}{2}$ ' Fosdick Radial.
- 2— $2\frac{1}{2}$ ' Mueller Radial.

- 1— $3'$ Mueller Radial.
- 1— $4'$ Dreses Radial.
- 1— 12 spdl. Moline Rail Drill.

LATHES

- 1— $43\frac{1}{2}$ " \times 18 ' Draper.
- 2— $40\frac{1}{2}$ " \times 18 ' Pittsburgh, C. R.
- 1— $37\frac{1}{2}$ " \times 16 ' Johnson, Triple Gd.
- 1— $28\frac{1}{2}$ " \times 14 ' Lodge & Shipley, Select. Gd. Hd.
- 4— $28\frac{1}{2}$ " \times 14 ' Lodge & Shipley, 220 v. motor drive.
- 1— $27\frac{1}{2}$ " \times 13 ' Schumacher & Boye.
- 1— $26\frac{1}{2}$ " \times 16 ' Whitcomb-Blaisdell.
- 2— $26\frac{1}{2}$ " \times 12 ' Wickes.
- 3— $26\frac{1}{2}$ " \times 12 ' Putnam, C. R.
- 1— $24\frac{1}{2}$ " \times 14 ' Blaisdell.
- 1— $22\frac{1}{2}$ " \times 10 ' Reed.
- 1— $21\frac{1}{2}$ " \times 10 ' Draper.
- 1— $18\frac{1}{2}$ " \times 6 ' Bradford.

GEAR CUTTERS

- 1— 24 " Fellows Shaper.
- 2—No. 1— 28 " Schuchardt & Schutte Hobber.
- 1—No. 2— 36 " Schuchardt & Schutte Hobber.
- 1— 36 " Fellows Shaper.
- 1— 36 " Gleason Bevel Former.

MISCELLANEOUS

- 2—Cold Saws, $7\frac{1}{2}$ " Nutter Barnes.
- 1—Cold Saw, No. 525 Newton Steel Fdry.
- 1—Keyseater, No. 1 Davis.
- 1—Keyseater, $1\frac{1}{2}$ " Morton.
- 1—Metal Band Saw, Williamson.
- 1—Nut Tapper, 6 spdl. National.
- 2—Pipe Machines, 4" Curtis.

Write for our Green List describing these and many others

HILL, CLARKE & CO. OF CHICAGO
625 W. WASHINGTON BLVD., CHICAGO, ILL.

An Invitation—

To New England Machine Tool Users

Here we are, located at Hartford, right in the heart of New England.

We carry on our floors the largest stock of new machine tools of reliable makes between Boston and New York, as well as many second-hand machines in good operating condition.

This combination of stock and location makes for your convenience, and enables us to give you a prompt personal service.

This is a cordial invitation to you to try out the Purinton & Smith service on whatever you happen to need now; then it's up to us.

Very Cordially,

PURINTON & SMITH, Hartford, Conn.

Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

Heavy Duty Presses

1—No. 202-C Toledo Plain Overhanging Double Crank Press; bolster plate 30x42"; opening in bed 23x27"; width between uprights 36"; 2" stroke; weight of fly-wheel 650 lbs.; total weight 5,700 lbs. Price-----\$750.00

1—No. 204-A Special Toledo Geared Overhanging Double Crank Press; bolster plate 31x40"; opening in bed 13x32"; width between uprights 32"; 3" stroke; geared 6½ to 1; weight of balance wheel 850 lbs; total weight 13,300 lbs.; Price-----\$1,200.00

Both of the above presses are without defect and in every way new for service.

Cylindrical Grinder

1—No. 2 Landis Universal Cylindrical Grinder; swings 16" diameter, 32" long; complete with pump, countershaft, center rest, two back rests, wheel trueing fixture and 6 dogs; weight 2500 lbs.; excellent condition.

Drill Presses

1—32" Hamilton, B. G. P. F., Sliding Head.
1—24" Hoefer, B. G. P. F., Sliding Head.
1—21" Hoefer, B. G. P. F.
1—21" Hoefer, W. & L.
2—20" Champion, B. G. P. F.
1—20" Champion, W. & L.
1—14" Canedy & Otto No. 27.
4—10" Barnes.

Stock includes 700 Machines.

The above are representative of the type tools always on hand.

Send us your inquiry for tool required. Best offerings with full details immediately submitted.

Wayne Machinery Company
Fort Wayne, Indiana

Second Hand Machinery

ENGINE LATHES.

12"x 6' Blaisdell, plain rest.
15"x 6' Johnson, c. r., taper.
16"x 6' Fifield, rise and fall rest.
16"x 6' Seneca Falls "Star"
Lathe, compound rest, quick
change gears, taper att., pan.
16"x 8' Lodge & Shipley, patent
head, quick change gears, c. r.,
pan, 8-speed counter.
18"x10' Draper, geared head,
compound rest.

20"x 8' Blaisdell, plain rest.
20"x12' Blaisdell, comp. rest,
4-step cone.
20"x12' New Haven.
24"x12' Reed, compound rest,
4-step cone.
28"x12' New Haven, comp. rest,
4-step cone.
60"x28' Thayer-Houghton, c. r.,
double back gears, triple grd.
face plate.

SHAPERS AND SLOTTERS.

15" Juengst plain crank.
16" Springfield.
20" Gould & E. b. g. crank.

22" Stroke horizontal slotter or
shaper.
20" Baker Bros. draw str. slotter.

MISCELLANEOUS.

Cold saw, 12" Burke.
Cutting-off machine, 24" Betts.
Drill, 20" Prentice, lever feed.
Drill, three-spindle Sipp, high
speed, ball bearing.

Gear cutter, 18x4" Brainerd spur.
Press, Ferracute F-2, foot.
Thread milling mch., 5", Milled
Screw & Machine Co.

Marshall & Huschart Machinery Co.

17 S. Jefferson St.,
Chicago, Ill.

915 Chemical Bldg.,
St. Louis, Mo.

For Immediate Delivery

One 15" Gleason Two-Tool Bevel Gear
Generator.

One 24" Fellows Gear Shaper.

Two 36" Fellows Gear Shapers.

One No. 2 Warner & Swasey H. H. Turret
Lathe.

One 20" Foote-Burt Heavy Duty Drill Press.

One 16"x8' Porter Lathe.

One 2x24" Jones & Lamson Turret Lathe.

One No. 472 Consolidated Double Crank
Press.

M. J. Walsh Mchy. Co., 141 Sycamore St.,
Milwaukee, Wis.

Riverside Machinery Depot

We Own Every Tool Offered

LATHES

20"x10' LeBlond standard.	16"x 6' Springfield, q. c. g., new.
20"x 6' Rahn & Larmon, q. c. g., (2).	14"x 6' Amtew standard, new, (2).
16"x 6' LeBlond, q. c. g., t. a.	14"x 6' Prentiss, q. c. g., t. a.
16"x 8' Porter standard.	13"x 8' Barnes standard, (2).
16"x 6' Reed standard, (2).	9"x 4' Sebastian standard.
16"x 8' Springfield, q. c. g., new.	

TURRET AND SCREW MACHINES

3x36 Jones & Lamson turret lathes, (4).	
No. 6-A Potter & Johnston automatics, (2).	
4" Gridley s. s. automatic.	
No. 4 Foster f. g. h. hand screw machines, (2).	
No. 3 Smurff & Kamen hand screw machines, (3).	
No. 2 Smurff & Kamen p. g. hand screw machines, (3).	
14" Pierce turret lathes, new, (3).	
12" Warner & Swasey f. h. turret lathes, with air chucks, (4).	
1x8 Pierce hand screw machines, new, (3).	
16" Warner & Swasey p. h. turret lathes, with air chucks, (4).	
No. 107 Wells hand screw machines, (4).	
2" Cleveland automatic screw machines, jigger feed, (2).	
1" Cleveland automatic screw machine.	

GRINDERS AND MILLING MACHINES

No. 60 Heald cylinder grinder.	No. 0 Brown & Sharpe plain miller.
No. 1 Landis internal grinder.	No. 4 Becker vertical miller.
No. 3 W. & M. surface, water att.	No. 5 Becker vertical miller.
No. 2 Hendy-Norton plain miller.	No. 2 Rockford universal miller.
No. 1½ Amer. plain millers, new, (3).	

GEAR CUTTERS

No. 6 Fellows gear shaper.	No. 13 Brown & Sharpe automatic
3-26 Brown & Sharpe auto., spur, (6).	spur and bevel gear cutters, (2)
3-36 Brown & Sharpe auto., spur, (2).	

PLANERS AND SHAPERS

30"x30"x10' Wilson 2-head planer, new, 4 wks. delivery.	16" Milwaukee shapers, new, (2).
24"x24"x6' Flather 1-head planer.	14" Gould & Eberhardt shaper.
24" Milwaukee shapers, new, (2).	20" Hendy geared shaper.

DRILL PRESSES

2-spindle Baker h. d. drill.	Almond flexible arm radial, t. a.
16-spindle Natco drill.	3½" Canedy-Otto plain radial drill, new.
20" Buffalo, b. g., p. f., new, (3).	14" U. S. plain drills, new, (2).

PRESSES AND HAMMERS

Waterbury-F. b. g. heavy, o. b. i.	800 lb. B. & S. roll board hammer.
No. 2-W Bliss wiring presses, (3).	800 lb. P. & W. roll board hammer.
1200 lb. B. & S. roll board hammer.	

STEAM ENGINES

20x42 Huetteman & Kramer r. h. heavy duty Corliss engine.	
15x20 Russell r. h. automatic girder frame engine.	
13x18 Eric r. h. 4-valve automatic engine.	
13½x15 Taylor automatic engine.	
10x16 Brownell r. h. automatic engine.	

We also carry a large stock of Steam Pumps, Electrical Equipment, and are in the market to purchase good equipment of all kinds.

Riverside Mch. Depot, 25 St. Aubin Ave., Detroit, Mich.

They're Winners

Bickford 8 ft. Vertical Boring Mill, two swivel heads, cone drive.

Flather Engine Lathe 20" x 10', compound rest.

Landis No. 21 Plain Grinding Machine, 10" x 30".

Garvin No. 1½ Universal Milling Machine.

Lynd-Farquhar Company
Boston, Mass.

Delivery Now

LATHE

20" x 10' Single Step, D. B. G. Lodge & Shipley Engine Lathe.
16" x 6' Marvel Head Lodge & Shipley Engine Lathe.

OTHER MACHINES

Landis 10" x 30" Plain Grinder with Universal Headstock.
Two Brown & Sharpe No. 3-26" Automatic Gear Cutters.
Ingle Automatic Gear Tooth Chamfering Machine.
24" Cincinnati High Speed Shaft Driven Upright Drill with Gear Box and Tapping Attachment.
Universal Swivel Table for Radial Drill.
Peerless Belt Lacer.
Two 36" Safety Wet Tool Grinders.
No. 1 Diamond Bench Grinder on Pedestal.
Dry Grinder for two 12" Wheels.
Heald Style "C" Drill Grinder.
Two 24" Rockford Wet Tool Grinders.
Globe Tool Sharpener.
Two U. S. Portable Electric Grinders, 110 volt, 2 H. P.
U. S. Portable Electric Grinder, 110 volt, ½ H. P.
Triplex Single Acting Vertical Deane Pump, 4½" bore, 3½" stroke.

The Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio.
U. S. A.

"RELIABUILT"

One Profit — Quick Delivery — As Represented
WATCH THIS PAGE

- 1—84" Bickford Boring Mill.
- 1—30"x30"x10' Gray Planer.
- 1—No. 1 Kempamith Universal Miller.
- 1—New No. 29 Oesterlein Univ. Miller.
- 2—New No. 35 Oesterlein Universal Millers.
- 1—36"x14' Fish Lathe.
- 1—36"x14' Fitchburg Lathe.
- 1—10' Bedford Crane.
- 1—Briggs Miller type A, table 8"x32".
- 1—52"-74"x52"x24' Betts Planer.
- 40—20"x8' Rolsled Turret Lathe.
- 1—3' Plain Radial, Univ. Mach. Co.
- 1—Rockford Heavy Duty Drill.
- 1—No. 3 Landis Universal Grinder.
- 1—New 25x18' Sidney Lathe.
- 1—9' Pitt Lathe.
- 1—No. 2 Brown & Sharpe Universal Grinder.
- 1—42" Niles Car Wheel Borer.
- 1—24x24x6' Powell Planer.
- 1—14" Walcott Crank Shaper.
- 1—No. 2 Warner & Swasey Screw Machine.
- 2—2 1/4" Gridley Motor Drive 220 V. Automatic.
- 1—64x64x10' Pond Planer, 2 heads.
- 1—5' 6" Niles Radial Drill.
- 1—New No. 6 Bryant Semi-Automatic Grinder.
- 1—14x5 Putnam Lathe, C. R.
- 1—No. 4 Inclinable Press.
- 1—Reed Punch and Shear, 24" throat, capacity punch 1" x 3/4".
- 3—25"x25"x6' Sellers Planers.
- 1—10" Gould & Eberhard Crank Shaper.
- 1—3 1/4x36 Jones & Lamson Chucking Lathe.
- 1—Jenckes 3" Band Turning Lathe.
- 1—3 1/4" Gridley Motor Drive, 220 V. Automatic.
- 1—West 3" Hydraulic Banding Mch.
- 1—No. 3 Brown & Sharpe Universal Grinder.
- 2—16x8 Putnam Lathes, compound rest, pan, pump, taper.
- 2—2 1/2x36" Marvel Lathes.
- 2—25x25x8' Sellers Planers.
- 2—14" Hendey Friction Shapers.
- 1—4 1/4 Gridley Motor Drive Automatic, 220 volt.
- 1—18x8 Flather Lathe, C. R.
- 1—18x8 Porter Lathe, C. R.
- 1—36x36x12 1/2 Open Side Planer.
- 1—30x30x8' Pond Planer.
- 2—18" Hendey Friction Shapers.
- 1—20x10 Pratt & Whitney Lathe, taper.
- 1—80x36"x15' Lincoln Planer, 4 hds.
- 1—20" Smith & Mills Crank Shaper.
- 1—24x18' Pond Lathe.
- 1—38x20' New Haven Lathe.
- 1—36x36x20' Putnam Planer.
- 1—24" Aurora Sliding Head Drill
- 2—24" Snyder Sliding Head Drills
- 1—26" Prentiss Sliding Head Drill.
- 1—36" Snyder Sliding Head Drill.
- 1—36" Aurora Sliding Head Drill.
- 1—Rockford 6-Spindle Multiple Drill.
- 1—36x14' Triple Grd. Fifield Lathe.
- 1—No. 7 Bement Horizontal Boring, Milling & Drilling Machine, 5" bar.
- 1—64x64x10' Pond Planer with 2 hds.
- 1—62x16 Pond Lathe.
- 1—12" Industrial Slotter.
- 1—Brown & Sharpe Universal Grinder 22x78".

100 Other Tools in Stock

Guaranteed Exactly as Represented or Money Returned
No Questions Asked

Simmons Machine Company
Office and Warehouse, Albany, N. Y.

OFFICES

1001 Singer Bldg.
New York

133 Seymour Street
Syracuse

358 Ellicott Square
Buffalo

Baird's Bargains

- 1-No. 2 Bath Universal Grinder, (used).
- 1-6"x18" Landis Plain Self-Contained Grinder, (new).
- 1-No. 34 Van Norman Internal Grinder, (new).
- 1-No. 1 Capital Internal Grinder, (new).
- 4-No. 1 Wilmarth & Morman Universal Grinders, (new).
- 3-No. 2 Wilmarth & Morman Surface Grinders, (new).
- 3-No. 3 Wilmarth & Morman Surface Grinders, (new).
- 1-26" Lynd Farquhar Open Side Planer Shaper, (new).
- 1-8" P. S. & W. Iron Frame Bending Brake, 14 gauge capacity, (like new).
- 2-No. 3 L. & J. Inclinable Presses, (new).
- 2-No. 4 L. & J. Inclinable Presses, (new).
- 2-No. 2 V. K. & V. Inclinable Presses, (new).
- 1-No. 4 Consolidated Inclinable Press, (used).
- 1-8"x8" Nagle Air Compressor, Steam Driven, (used).
- 1-10"x10" Ingersoll-Rand Air Compressor, Belt Driven, (used).
- 1-200 lb. Beaudry Power Hammer, (used).

We have 2000 machines in stock to choose from.

We invite inspection.

W. J. Baird Machinery Co.
265 Jefferson Ave., Detroit, Mich.

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Marvin & Casler Co.	56	Savage Co., W. J.	88
Metz Machine Tool Works	32	Scully-Jones & Co.	52
Milwaukee Shaper Co.	75	Second-Hand Machinery	103 to 132
Model Tool & Gauge Co.	99	Sellew Machine Tool Co.	62
Modern Tool Co.	135	Sidney Tool Co.	22
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Monarch Machine Tool Co.	16	Simmons & Co., W. H.	53
Motch & Merryweather Machinery Co.	114	Sipp Machine Co.	63
Mulliner-Enlund Tool Co.	20	SKF Ball Bearing Co.	5
Murchey Machine & Tool Co.	50	Smith & Mills Co.	74
Nagel Electric Co., W. G.	28	Smith Mfg. Co., Philip	18
National Acme Company	3	Smith Specialty Mfg. Co.	100
National Clutch Co.	82	Smurr & Kamen Co.	15
National Machine Tool Co.	54	South Bend Lathe Works	19
Nelson-Blanck Mfg. Co.	62	South Bend Machine Tool Co.	103
Nelson Tool Co.	100	Stocker-Rumely-Wachs Co.	109
Nestor Manufacturing Co.	44	Strong, Carlile & Hammond Co.	110
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Nicholson & Co., W. H.	50		
Niles-Bement-Pond Co.	112	Taylor & Fenn Co.	13
Nobach Pattern Works, B. C.	99	Taylor Machine Co.	18
Northwestern Expanded Metal Company	89	Tervell's Equipment Co.	31
O'Brien Machinery Co.	118	Thomas Elevator Co.	80
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Pawling & Harnischfeger Co.	66	Underwood & Co., H. B.	102
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Peerless Machine Co.	77		
Peninsular Machinery Co.	116	Van Deman, A. N.	100
Perkins, Jr., W. L.	122	Van Dorn Electric Tool Co.	70
Peter Bros. Mfg. Co.	78	Victor Ring Traveler Co.	103
Pierce Wrapping Machine Co.	14		
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Purinton & Smith	126	Wayne Machinery Co.	127
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Racine Tool & Machine Co.	79	Western Machinery Co.	108
Ready Tool Co.	94	White Machinery Co., A. D.	108
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Zernickow, O.	93		

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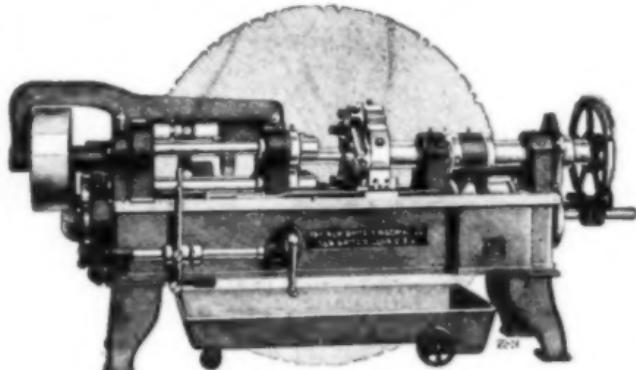
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